

Network Management Card

User manual



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1 EATON Network Solution

1.1 General Presentation

EATON Network Solution:

- Provides information on events concerning the supply of power to the computers connected to your network,
- Carries out automatic shutdown of computer systems,
- Monitors and controls all the UPSs connected to the network.

EATON Network Solution provides 3 main functions:

- Supervision of the UPSs over the Network: Web browser, Intelligent Power Manager, or SNMP Network Management System (NMS).
- Protection of the computers (multi-platform) with:
 - Network Shutdown Module for EATON.
 - Netwatch for Powerware UPS.
- Connexion of the UPS to the Network.

1.1.1 Connecting the UPS to the Ethernet network

This function can be performed through network Cards inserted in the UPS (Network Management Card). Also a software "agent" running on a nearby PC that is called the Network Management Proxy can be used. Network Management Proxy allows USB or Serial connected UPS to be seen on the network through the PC.

The Network Management Card or Proxy:

- manages communication with the UPS (as well as local protection of the machine on which Proxy is installed)
- periodically accesses the information concerning the UPS
- makes this information available to the connected applications (Network Shutdown Modules, Netwatch, Web Browser, Network Management Systems, Intelligent Power Manager)
- sends notifications on certain events.

Operation may be in standard secure mode (the default mode) or in SSL secured mode (Secure Socket Layer SSL).

1.1.2 Protection of the computers/servers

This function is performed by:

- Network Shutdown Module for EATON Pulsar Series
- Netwatch for EATON Powerware Series UPS

Installed on each of the computers to be protected.

Note that Network Shutdown Module and Netwatch are available on several Operating Systems.

Protection applications:

Continuously gets information from the Network Management Card/Proxy connected to the UPS.

Warns administrators and users if AC power fails and proceeds to a graceful system shutdown before the end of battery backup power is reached.

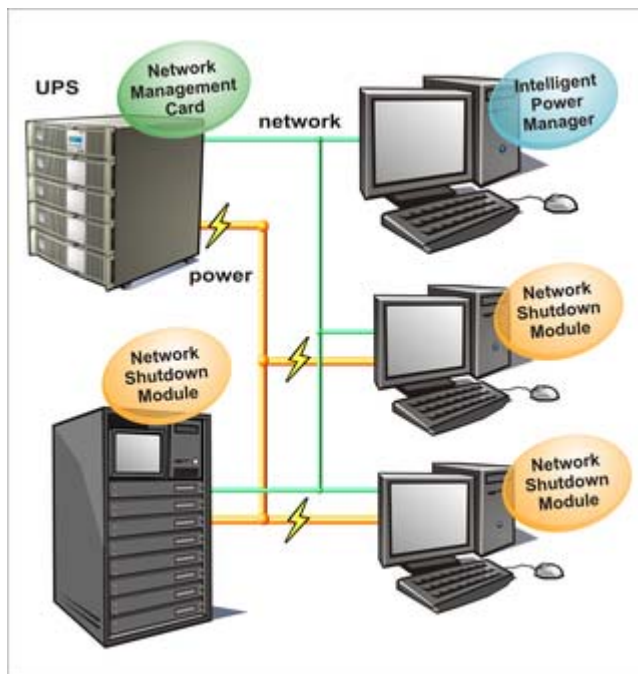
1.1.3 Supervision of the UPSs over the network

Depending on your needs, you can either use:

- Internet browser to monitor each UPS, as Management Proxy and Management Card includes a Web server
- Company's standard Network Management System (HP-Openview, CA Unicenter, HP Insight Manager, IBM Tivoli Netview)

To simplify integration of EATON UPSs, use one of the Network Management System Kits for EATON devices. These kits are available on the Management Pac 2 CD-ROM. (ref 66923)

- The supervisor "Intelligent Power Manager".



1.1.4 Connection

Before installing the Network Solution, the UPS must be set up as indicated in the steps below.

Shut down the computers to be protected by the UPS.

Connect the UPS to a wall outlet. (For UPSs above 3kVA, please refer to the UPS installation manual).

Connect the power cord of each computer to an outlet on the UPS. (For UPSs above 3kVA, please refer to the UPS installation manual)

1.1.4.1 How to connect UPS / agent / network:

Insert the optional NMC communication card in the UPS and connect the UPS to the computer network.
Start the UPS, then the computers.

1.1.4.2 Setting up the protection:

Set up the Network Management Card (see user manual).

Install and configure the protection application on all machines that are to be protected by the UPS:

- Network Shutdown Module for EATON Pulsar series UPS : The software components for each platform and the user manuals are on the Solution-Pac-2 CD or available at <http://download.mgeops.com>
- Netwatch for EATON Powerware series UPSs : The software components for each platform and the user manuals are available at <http://powerquality.eaton.com>

1.2 Presentation of the Network Management Card (NMC)

1.2.1 Compatibility with UPSs

The Minislot Network Management Card is compatible with the UPS listed into the compatibility list:

- available at <http://download.mgeops.com/> for the EATON Pulsar series UPSs.
- available at <http://powerquality.eaton.com> for the EATON Powerware series UPSs.

Network Management Card acquires information regarding the operation status of the UPS systems and provides remote control of the system through the ETHERNET network from any SNMP administration station or Web browser.

NMC also supplies alarms to the Network Shutdown Module in order to trigger shutdowns or manage other automatic actions on protected servers.

Network Management Card is compatible with the "Intelligent Power Management" supervision system, with the EATON network protection system and with Powerware Netwatch.

[Network Shutdown Module](#)

[Intelligent Power Manager](#)

[Management-Pac 2](#)

1.2.2 Direct sending of E-mail

When a UPS event occurs, the Network Management Card can directly notify up to 4 addresses by e-mail. (see E-mail Notification and [E-mail message settings](#))

1.2.3 Sending text messages (SMS)

SMS notification requires the use of a third-party application that converts emails to SMS. The card offers the possibility of redirecting UPS alarms to an e-mail server. The format of these e-mails is compatible with mobile telephone e-mail/SMS transfer systems proposed by ISPs. The format to be used depends on the service provider.

For example, sms.0660256585@your-login.activmail.net (text messages).

1.2.4 Compatibility with the Network Management Systems (NMS) – Trap sending

The Network Management Cards are compatible with the major Network Management Systems (IBM Tivoli, CA Unicenter, HP Insight Manager). The Management-Pac 2 offering includes the necessary SNMP plug-ins to allow an easy integration in the NMS. Events are notified by SNMP trap.

NMS can subscribe on page "[Notified Applications](#)"

The trap list is given in the [appendix](#).

1.2.5 Environment Sensor (option)

The optional [Environment Sensor](#) (66846) solution can be connected to the Card Settings port of the Network Management Cards.

Environment Sensor enables measurement of temperature and humidity around the UPS, allows to manage external alarms via 2 dry contacts and notification of alarms according to pre-programmed thresholds. (see [Environment Status](#) and [Environment Configuration](#))

1.3 Technical data

1.3.1 Hardware characteristics

Dimensions

Dimensions (L x l x H) 132 x 66 x 42 mm

Weight (gr) 70 g

Storage

Storage temperature -10 °C to 70 °C

Ambient conditions

Operating temperature 0 °C to 40 °C

Ambient humidity 90 % RH max without condensation

ROHS 100 % compatible

1.3.2 EMC Compatibility

When correctly installed and used in accordance with the manufacturer's instructions, the Network Management Card complies with the following standards:

Safety for ATI: IEC/EN 60950-1 2002

EMC: EN 61000-6-2 (2002), EN 61000-6-3 (2002). IEC/EN 62040-2 (2002).

As per European directives:

Low voltage: 73/23/EEC and 93/68/EEC

EMC: 89/336/EEC and 93/68/EEC.

1.3.3 Configuration

the NMC Card can be easily installed while the UPS is online, maintaining the highest system availability

The user can configure the card with one of the following means:

- Web browser
- Local serial link (network parameters)
- BOOTP/DHCP (network parameters).

1.3.4 Administration

- NEW features:
 - Secured management through SNMP V3
 - Support of dual stack IP v4 / IP v6
- Up to 35 workstations (in TCP connected mode) or up to 100(in UDP broadcasted mode) protected by Network Shutdown Modules - Central or local configuration.
- Up to 5 browsers connected at the same time (3 in SSL).
- Minimum recommended browser versions: Internet Explorer 6.x / 7 / 8, Mozilla Firefox 2.0 / 3.0 / 3.5
- E-mail sending configurable according to UPS alarms and transmission of a periodical report.
- Control of UPS on/off switching via the HTML interface.
- Adjustment and control of PowerShare outlets via the HTML interface, sequential starting of the installation and optimisation of backup time by shutting down non-priority systems.
- Automatic data and time adjustment via NTP server.
- Protection by encrypted password.
- Protection by secure SSL connection.
- Backup logs in the non-volatile memory.
- Languages available: English / French/ Spanish / German / Italian / Chinese Traditional / Chinese Simplified / Japanese / Portuguese / Russian / Korean.
- On-line help in English available for each page.
- Card firmware update via the network.
- Card Mass settings via the network with Intelligent Power Manager.
- Firmware Mass Upgrade via the network with Intelligent Power Manager.

1.3.5 Network

Fast ETHERNET 10/100 Mbits compatibility with auto-negotiation on the RJ45 outlet.

Compatible with 1Gbits networks in 100 Mbits mode

1.3.5.1 List of ports used

- | | |
|-----------------------------|---------------|
| • BootP, DHCP | UDP 68, 67 |
| • HTML | TCP 80 |
| • SSL | TCP 443 |
| • NSM in connected mode | TCP 5000 |
| • NSM in UDP broadcast mode | 4679 and 4680 |
| • SMTP | 25 |
| • NTP | 123 |
| • SNMP V1&V3 | 161 |
| • TRAP SNMP | 162 |

1.3.6 Environment sensor

- Temperature measurement from 0 to 70 °C with +/- 1 °C accuracy.
- Measurement of humidity from 0 to 100 % with +/- 6 % accuracy.
- Min / max time-stamped function for temperature and humidity.
- Choice of temperature readings in Celsius or Fahrenheit.
- High and low thresholds, hysteresis and offset adjustable via Web interface.
- Possibility of notification of status changes by e-mail, SMS or SNMP trap.
SMS notification requires the use of a third-party application that converts emails to SMS.
- Position detection of 2 dry contacts (maximum sensor/contact distance: 20 m).
- Name and status of each configurable contact.
- Recording of events and measurements in the card log
- Possibility of shutting down the installation in the event of a threshold being exceeded or on opening / closure of a dry contact
- Connection to the card with straight shielded CAT5 RJ45 network cables (maximum card/sensor distance: 10 m)

1.3.7 MIB (Management Information Base)

The card is Compatible with following MIBs:

- MIB II (RFC 1213)
- Internet Engineering Task Force (IETF) Standard UPS MIB (RFC 1628)
- EATON Pulsar MIB (ex MGE) V1.7
- EATON Powerware MIB (PowerMib)

See the [appendix](#) Chapter

1.3.8 Default parameters

Function	Parameter	Default value	Possible value
Network	IP address	192.168.1.2	Network IP address
	Subnet mask	255.255.0.0	Network IP address
	Gateway Address	0.0.0.0	Network IP address
	BOOTP/DHCP	Enabled	Active / Deactivated
	IPv6 Enabled	Disabled	Active / Deactivated
	IPv6 Auto Config Enabled	Disabled	Active / Deactivated
	Firmware Upload	Enabled	Active / Deactivated
	SMTP server	smtpserver	49 characters maximum
System	UPS Contact	Computer Room Manager	49 characters maximum
	UPS Location	Computer Room	31 characters maximum
	History log interval (sec.)	60	10 to 99999 sec.
	Environment log interval (sec.)	300	10 to 99999 sec.
	Default Language	English	English / French / Spanish / German / Italian / Chinese Traditional / Chinese Simplified / Japanese / Portuguese / Russian / Korean
Notified Application table		empty	NA
Access control	User name	admin	10 characters maximum
	Password	admin	10 characters maximum
SNMP	Community name read	public	32 characters maximum
	Trap port	162	Not configurable
	SNMP Version	V1&V3	Disabled, V1, V3, V1&V3
	Read-Only User	readuser	1 character minimum, 32 characters maximum
	Read-Only Security Level	Authentication	None, Authentication, Authentication&Privacy
	Read-Only Password	readuser	8 characters minimum, 24 characters maximum
	Read-Write User	wirteuser	1 character minimum, 32 characters maximum
	Read-Write Security Level	Authentication&Privacy	None, Authentication, Authentication&Privacy
	Read-Write Password	writeuser	8 characters minimum, 24 characters maximum
	Notification Username	notifuser	8 characters minimum, 24 characters maximum

Date and time	Date and time adjustment	Accept automatic update from NSM or EPM	Synchronise with an NTP server Accept automatic update from NSM or EPM Synchronise manually 49 characters maximum
	NTP server	ntpserver	
Serial link	Speed	9600 baud	Not configurable
	Data bits	8	Not configurable
	Stop bits	1	Not configurable
	Parity	without	Not configurable
	Flow control	without	Not configurable

2 Installation

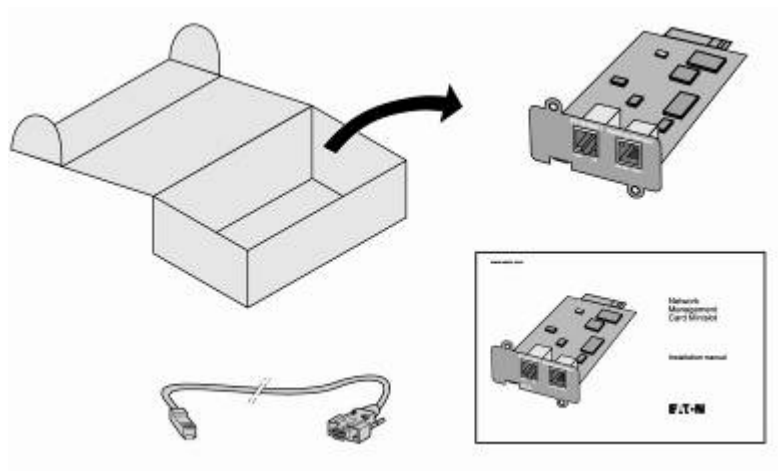
2.1 Unpacking and check on contents

The installation kit contents:

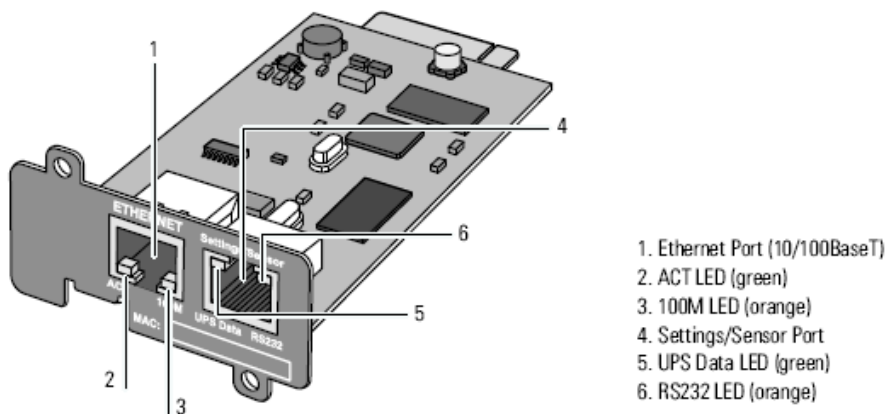
A Network Management Card (66102)

A serial communication cable for configuration (**34003918**)

Installation manual (**34003905**)



2.2 Indications



Ethernet Port

LED	Colour	Activity	Description
ACT	Green	Off	Card not connected to the network.
		On	Card connected to the network but without activity
		Flashing	Port is active in receiving / transmission
100M	Orange	Off	Port operating at 10Mbps/s.
		On	Port operating at 100Mbps/s.

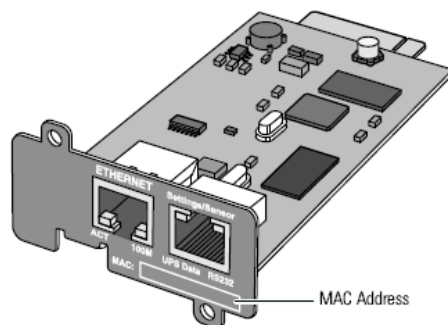
Settings/Sensor Port

LED	Colour	Activity	Description
UPS Data	Green	Off	Card startup in progress.
		On	Communication with UPS in progress
		Flashing	Normal operation. Communication with the UPS is operational
RS232	Orange	Off	Configuration menu is active
		On	Normal operation. Configuration menu is deactivated
		Flashing	Communication with the Environment Sensor (option).

2.3 Installation in the UPS

The Network Management Card (66102) is "hot-swappable". It can be installed in all UPSs of the EATON Pulsar series or EATON Powerware series equipped with a Minislot without having to shut it down.

- On the UPS, remove the cover from the Minislot
- Note the card's MAC address



- Insert and tighten the card's retaining screws
- Connect the ETHERNET cable
- Wait 2 min. the card is completely operational when the green UPS Data LED flashes continuously

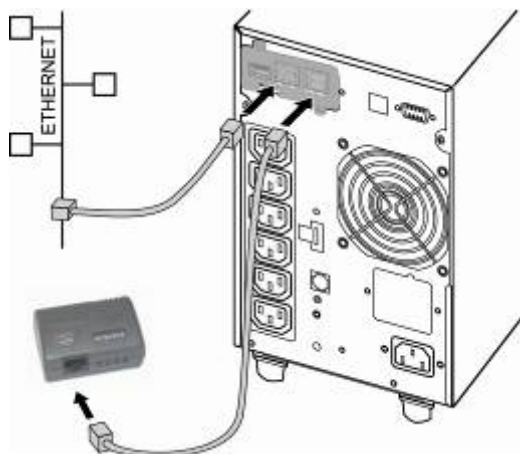
2.4 Sensor installation (option)

The Environment sensor is available as an option for the Network Management Card and is available from EATON (reference 66846).

The sensor allows remote monitoring of the UPS's environment through regular measurements: temperature, humidity, status of two external contacts. It also enables notification of alarms (e-mail, trap SNMP) according to pre-programmed thresholds.

It is connected to the Service port (Settings/Sensor) directly on the Network Management Card with a standard Ethernet cable (10 meters maximum).

Recognition is automatic. Supervision and configuration are performed via a menu that can be accessed directly from the home page.



3 Configuration

3.1 Configure IP parameters

Once the card has started:

Connect one end of the cable (34003918) to the Service port.

Connect the other end of the cable to the COM port (IOIOI) of a PC.

Launch a HyperTerminal™ type emulator with the following configuration:

- Speed: 9600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none
- "Locally reproduce the characters entered" option: deactivated.

Enter admin. The main menu is displayed:

```
-----  
EATON  
NETWORK MANAGEMENT CARD  
-----  
1 : Reset  
2 : Network configuration  
3 : Set Login Password to Default  
4 : Return to Default Configuration  
0 : Exit  
-----
```

3.1.1 Your network is equipped with a DHCPv4 server

The card is configured by default with this service activated.

The card automatically collects IP parameters.

To know the IP parameters, type 2, the next menu is displayed:

```
-----
Network settings
-----
1 : Read Network settings
2 : Modify Network settings
3 : Set Ethernet speed
0 : Exit
-----
```

Then type 1. The menu is displayed:

```
Network configuration :
MAC address : 00:20:85:FD:1C:07
Mode : Static IP
IP address : 166.99.21.94
Subnet mask : 255.255.248.0
Gateway 166.99.17.1
Link Local IPv6 address : FE80::220:85FF:FEFD:4210 /64
Global IPv6 address : 2001:720:410:100A:220:85FF:FEFD:4210 /64
Global IPv6 address : 1789:720:410:100A:220:85FF:FEFD:4210 /64
```

Note the IP address.

The IPv6 parameters are only read only.

To exit, enter 0 then 0. The card is operational.

Note: As long as the card is not connected to the network, it continuously attempts to make connection. Once the connection has been established, the operational mode presented in the table above becomes effective.

3.1.2 Your network is not equipped with a DHCPv4 server

In the main menu enter 2, then 2 again. The menu is displayed:

Follow the instructions and enter the static IP parameters.

At the end of the menu, wait for the "Done" message to be displayed indicating that the IP parameters have been saved.

```
-----
Network settings
-----

1 : Read Network settings
2 : Modify Network settings
3 : Set Ethernet speed
0 : Exit
-----

For each of the following questions, you can press <Return> to select the
value shown in braces, or you can enter a new value.
Should this target obtain IP settings from the network?[N] N
Static IP address [166.99.21.94]? 166.99.21.21
Static IP address is 166.99.21.21
Subnet Mask [255.255.248.0]? 255.255.255.0
Subnet Mask is 255.255.255.0
Gateway IP address [166.99.17.1]? 166.99.17.1
Gateway IP address is 166.99.17.1
Wait during your new configuration is saved ...
Reset the card to take into account the new configuration.
```

Return to the main menu and enter 1 then 2.

The card restarts with the new IP parameters.

3.1.3 IPv6 Parameters

The IPv6 parameters are read only through the serial line configuration menu. If IPv6 is enabled, all IPv6 addresses of the card can be read from the HyperTerminal™. The “Your network is equipped with a DHCPv4 server” chapter describes the steps to follow to display this addresses.

3.2 Test after configuration

To check that the Network Management Card is operational after installation and configuration:

From a station connected to the same subnet as the card, open a web browser and enter the IP address of the card in the address field

Check the display of the [home page](#).

4 Supervision and administration by browser

On a computer equipped with a Web browser (Internet Explorer, FireFox, ...), enter the address initialised previously in the Installation chapter (e.g. <http://166.99.21.21>.)

The "UPS properties" home page is displayed.

4.1 Optimising the performance of your browser

To view status changes on the UPS in real time, the browser must be configured so that it automatically refreshes all the objects on the current page.

Example on IE 6: Tools / Internet Options / General / Parameters menu, tick Every time this page is visited and validate.

4.2 UPS

4.2.1 UPS properties page

Essential information about the UPS status is available on the UPS Properties page (see Figure), which refreshes automatically every ten seconds.

The UPS Properties page shows an image and generic name of the UPS range. You can customize Computer Room to name the location of your system (see “System Settings”).

An animated diagram displays for online UPSs showing an overview of the current UPS operating mode.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

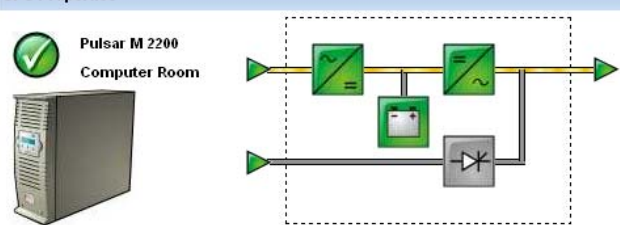
Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

UPS PropertiesHelp



Pulsar M 2200
Computer Room




UPS Status

Power source :	AC Power
Output load level :	<div><div></div></div> 3%
Output :	<div><div></div> Master : On</div> <div><div></div> Group1 : On</div> <div><div></div> Group2 : On</div>
Battery	
Battery load level :	<div><div></div></div> 100% Charging
Remaining backup time :	1 h 37 mn 43 s
Battery status :	OK

Last update : 2008/06/12 17:24:21

4.2.1.1 UPS status icons.

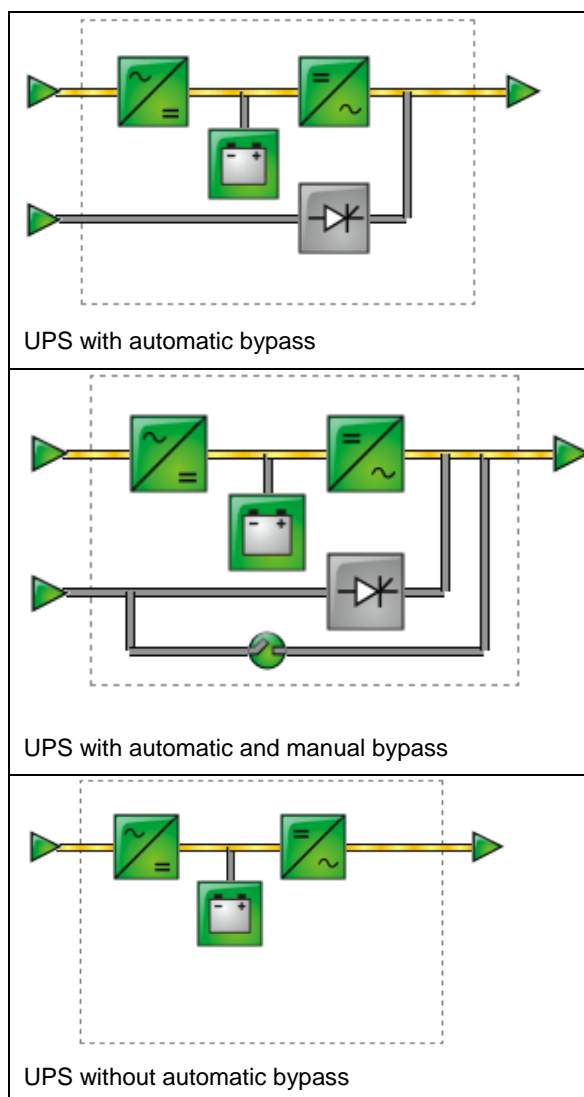
The various icons showing the status of the UPS are:

	Normal operation
	Alarm present. This icon links directly to the alarm page.
	Loss of communication with the UPS

Animated synoptic: An animated synoptic gives a global overview of the UPS current operating mode.

This synoptic is available on all On-Line UPS.



The synoptic drawing depends on the UPS topology. The different drawings are described in the table below.





Note: In case of loss of communication with the UPS, all the elements of the synoptic are grey.

The various elements of the synoptic are the following ones:




AC Normal Input:

	Green	In tolerances
	Gray	Out of tolerances




AC Normal Flow:

	Yellow	AC to DC converter powered by AC Normal
	Gray	AC to DC converter not powered by AC Normal



AC to DC Converter:

	Green	Powered
	Gray	Not powered
	Red	Internal failure



Battery:

	Green	Remaining capacity > 50%
	Orange	Remaining capacity < 50%
	Red	Low battery when UPS is on Battery Battery to be checked (battery test result)




Battery Output Flow:

	Yellow	DC to AC converter powered by battery
	Gray	DC to AC converter not powered by battery



DC to AC Converter Input flow:

	Yellow	Energy flow present
	Gray	No energy flow



DC to AC Converter :

	Green	Powered
	Gray	Not powered
	Red	Internal failure



DC to AC Converter Output:

	Yellow	Energy flow present
	Gray	No energy flow




AC Bypass Input:

	Green	In tolerances
	Red	Out of tolerances



AC Automatic Bypass Flow :

	Yellow	Energy flow present
	Gray	No energy flow



AC Automatic Bypass Status:

	Green	Powered
	Gray	Not powered
	Red	Internal failure



AC Manual Bypass Flow:

	Yellow	Energy flow present
	Gray	No energy flow



AC Manual Bypass Status:

	Green / Gray	Open
	Red / Yellow	Closed

AC Output Flow:

	Yellow	Energy flow present
	Gray	No energy flow (or Load = 0%)

AC Output:

	Green	Load protected
	Red	Load not protected

UPS measurements :

Place the cursor over an element in the diagram to display the UPS measurement detail (see Figure). These measurements are available for Input, Battery, Output, and Bypass mode. The available measurements depend on the UPS range.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters


Logs and Notification

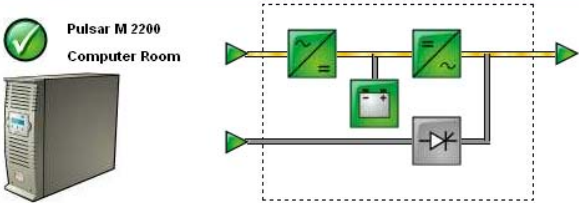
- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

UPS Properties

**Pulsar M 2200**
Computer Room



AC Output

Voltage	231 V
Current	0.4 A
Frequency	50.0 Hz
Load level	4 %
Apparent Power	0.0 kVA
Active Power	0.0 kW

UPS Status



Power source :	AC Power
Output load level :	<div><div></div></div> 4%
Output :	<div><div></div> Master : On</div> <div><div></div> Group1 : On</div> <div><div></div> Group2 : On</div>
Battery	
Battery load level :	<div><div></div></div> 100% Charging
Remaining backup time :	1 h 37 mn 43 s
Battery status :	OK

Last update : 2008/06/12 17:25:35

4.2.1.2 UPS status

- **Active sources:** (available on parallel or modular UPS)
x UPS + y UPS redundant : x indicates the minimal number of UPS necessary to power the load, y indicates the number of UPS in redundancy.
- An alarm can be generated if the number of UPS in redundancy is less than a configurable threshold. See UPS modules section.
- **Power source:** indicates whether the power comes from the utility or from the UPS battery
- **Output load level:** indicates the power percentage used at UPS output
- **Output:** indicates if the different UPS outputs are protected.
- **Master:** indicates if the UPS main output is protected
- **Group1** and **Group2:** indicates if the controlled outlets (if available) are powered.

The various icons showing the status of the UPS outputs are:

 (green outlet)	Outlet powered
 (red outlet)	Outlet not powered or not protected

Battery Information:

- **Battery load level:** remaining battery charge (in percent).
The information is completed with the 3 following labels:
 - **Charging:** if the utility power is present and the battery charge is in progress
 - **Discharging:** if the UPS operates on battery.
 - **Fault:** if the battery is faulty.
- **Remaining backup time:** Estimation of the battery's maximum backup time remaining before UPS shutdown
- **Battery status:** Result of the last automatic battery test carried out by the UPS
Possible values are:
 - **OK:** the test was completed correctly
 - **NOK:** the battery needs to be checked
 - **Deactivated:** the automatic battery test is not validated on the UPS

4.2.1.3 Viewing the modules

Click on **UPS Modules** scroll list to view the information about the UPS modules.

Network Management Card

UPS Properties Help

Pulsar MX Frame 15U
Computer Room

UPS Modules

Active sources : 1 UPS + 3 UPS redundant

Minimum redundant UPS modules to trigger alarm : 1 Save

Module Nr	Status	Technical Level / Firmware Revision	Serial Nr	Output load level	Battery load level
1		208	1V7G47011	0%	100%
2		208	1V7G15032	0%	100%
3		208	1V7G43020	0%	100%
4		208	1V7G47017	0%	100%

Active sources:

x UPS + y UPS redundant : x indicates the minimal number of UPS necessary to power the load,
y indicates the number of UPS in redundancy.



The addition of these 2 values is the total number of available UPS.


The **Minimum redundant UPS modules to trigger alarm** can be configured from this page. The button **Save** makes the card setting the parameter into the UPS. A warning message informs the user about the consequences of this parameters modification.


The redundancy lost can generate Email notification (if set in the email notification page) and SNMP trap. It can also be used by NSM for server protection criteria.


The **Module Nr** gives the location of the module in the UPS.

The **Status** can take the next forms:

 or  when the module is working properly with no alarm.

 when the module has at least one alarm (level Warning) active.

 when the module has at least one alarm (level Critical) active.

 when the module has a communication fault.

When the module is working properly with no alarms, the icon is not reactive, otherwise it is reactive and clicking on it makes the page Alarm Table appear.

Output load level: Value of the percentage of load at module output

Battery load level: Percentage of charge available in the battery module

4.2.1.4 Viewing the alarms

Click on "Alarm Table" scroll list to view the list of current alarms. The table of managed alarms is included in the [appendix](#).

The level of the alarms appears like below:

-  Critical
-  Warning
-  Unknown

Alarm table for standard UPS:

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters


Logs and Notification

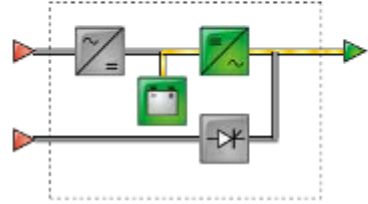
- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload





UPS Properties

**Pulsar M 2200**
Computer Room



Help

UPS Alarms

	Alarm Time	Alarm Description	Severity
UPS	2008/06/12 17:28:45	Normal AC voltage out of tolerance	
	2008/06/12 17:28:49	Normal AC NOK	
	2008/06/12 17:28:49	UPS on battery	
	2008/06/12 17:28:51	Bypass AC voltage out of tolerance	

Alarm table for modular UPS:

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

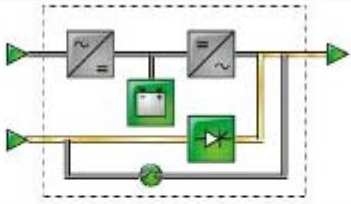
- Measurements
- Event Log
- System Log
- Email Notification

Settings


- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

UPS Properties

Pulsar MK Frame 16U
Computer Room



UPS Alarms

	Alarm Time	Alarm Description	Severity
UPS	2008/06/18 10:11:55	Load not protected - On Automatic Bypass	

4.2.1.5 Viewing the “About your UPS” page

Click on **About your UPS** scroll list to view the information about the UPS and the card.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters


Logs and Notification

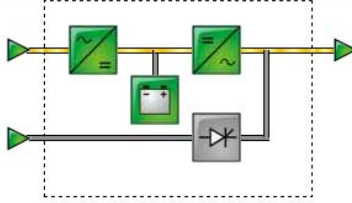
- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

UPS Properties

 **Pulsar M 2200**
Computer Room



About your UPS

UPS Name :	Pulsar M 2200
UPS Serial Number :	012345678
UPS Technical Level :	unknown
System Technical Level / Firmware Revision :	SW: AH

Network Management Card

Card Firmware revision :	EBb3
Card Commercial Reference :	66102
Card Technical Level :	01
Card Revision :	CA
Card Serial Number :	49HF5100H
Card Ethernet Mac Address :	00:06:23:00:1C:68
Card Ethernet Speed :	100 Mbit

4.2.2 On-line help

On-line contextual help in English is available at the top of each page by clicking on the Help link, which is always located on the top right corner. The navigation menu of the on-line help is identical to that of the card's pages.

The Help page always opens a new window.

Network Management Card

UPS
● UPS Properties
● UPS Control
● Weekly Schedule
● Shutdown Parameters
Logs and Notification
● Measurements
● Event Log
● System Log
● Email Notification
Settings
● Network
● System
● Notified Applications
● Access Control
● Time
● Firmware upload

UPS Properties Help

This is the page by default, displaying the fundamentals status of the UPS.

At the top of the page, the UPS is identified : image, name and location.

The alarm icon above the UPS image shows if an alarm is active when it is red, click on it to see the current alarm page. When there is no alarm the green icon is displayed.

The electric diagram of the UPS is displayed showing the electrical flow which powers the load and also the main parts of the UPS.

The electric diagram is not available for Line Interactive UPS.

The second part of the page is refreshing every 10 seconds and contains informations depending of the selection in the combo box :

UPS Status selects the main status of the UPS :

Active sources shows the current use of a modular UPS, the notation x UPS + y UPS is meaning : x is the number of modules necessary to power the load, y is the number of redundant modules.

Power source shows where the power comes from.

Output load level shows the load level.

Output shows the status of all UPS outputs.

UPS Modules selects the status of the modules of the UPS, available only for modular UPS :

Each module of the UPS has static informations as the serial number, or dynamic information as the global status showed with an alarm icon and also its percent load and battery level.

4.2.3 Logging In

By default, the user name and password are both admin (see Figure).



Both the user name and password fields accept up to a maximum of ten characters. After five minutes have elapsed, or if the browser is closed and reopened, you must re-enter the user name and password. An error in either field results in rejection of the requested action (such as save, page access, or card reboot). After three unsuccessful login attempts, you must restart the browser. Both the user name and password fields are encrypted with an MD5 type algorithm, ensuring total security.

See "[Set Login Password to Default](#)" to reset the password.

4.2.4 UPS control



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

UPS configuration may prevent the shutdown and restart commands from being properly run. Read the UPS user manual for more information.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

UPS Control

Help

Pulsar M 2200

Computer Room

Output	Status	Control	Off Delay	Toggle Duration	On Delay
Master	On	Safe power down & reboot		0 sec	
Group1	On	None	0 sec	0 sec	0 sec
Group2	On	None	0 sec	0 sec	0 sec

Execute

Save

This page enables triggering of [startup and shutdown sequences](#) for the UPS main output and controlled outlets.

The status of each output is displayed by a symbol associated with the Off label (red symbol) or On (green symbol).

The shutdown sequences take into account the time required for the registered servers to shut down without losing data ([see shutdown parameters](#)).

The main outlet has priority over the controlled outlets. Shutdown of the main outlet causes the controlled outlets to shut down. Controlled outlets can only be started if the master outlet is on.

The system proposes six different commands, and a command is only actually started after clicking on **Execute**:

- **Safe power down:** A sequence to switch off output power is launched immediately. The systems supplied are shut down correctly while the shutdown sequence is running, then the output is cut.
- **Safe power down & reboot:** A sequence to switch off then restore output power is launched immediately. The powered systems are shut down correctly during the shutdown sequence, then the output is switched off.

Finally, the restart sequence is launched at the end of the time delay specified in the "Toggle duration" parameter. The output status is updated.

- **Immediate On:** A sequence to switch on output power is launched immediately. The output is re-powered and the systems supplied start up correctly.
- **Delayed, safe power down:** This is the same switch off sequence as for the "Safe power down" command, but postponed by the number of seconds programmed in the "Off Delay" parameter.
- **Delayed, safe power down & reboot:** This is the same switch off then on sequence as for the "Safe power down & reboot" command, but postponed by the number of seconds programmed in the "Off Delay" parameter.
- **Delayed On:** This is the same switch on sequence as for the "Immediate On" command, but postponed by the number of seconds programmed in the "On Delay" parameter.

The **Save** button saves the Off Delay, Toggle duration and On Delay parameters on the card.

4.2.5 UPS weekly schedule programming

Click on the **Weekly schedule** section of the menu.



NOTE *If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.*

Network Management Card

UPS		Weekly Schedule		Help
<ul style="list-style-type: none">UPS PropertiesUPS ControlWeekly ScheduleShutdown Parameters		Pulsar M 2200		Computer Room
Logs and Notification		Day	Shutoff Time	Restart Time
<ul style="list-style-type: none">MeasurementsEvent LogSystem LogEmail Notification		Sunday	-	22:00
		Monday	20:00	06:30
		Tuesday	-	-
		Wednesday	-	-
		Thursday	-	-
		Friday	-	-
		Saturday	-	-
Settings		<div>Save</div>		
<ul style="list-style-type: none">NetworkSystemNotified ApplicationsAccess ControlTimeFirmware Upload				

UPS configuration may prevent the shutdown and restart commands from being properly run. Read the UPS user manual for more information.

The weekly schedule enables the administrator to optimise power consumption or program a reboot of the protected equipment at a set time.

In a shutdown sequence, the Network Shutdown Modules connected to the card are informed and ensure that each machine is shut down correctly before the UPS output is switched off. Up to 7 UPS shutdown sequences can be programmed in one week, with a minimum shutdown delay of 30 minutes.

The On / Off sequences are valid only if the card's time has been properly set.

4.2.6 Shutdown parameters



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

This page enables viewing and configuration of UPS operating parameters in battery mode and for power restoration.

Click on the **Shutdown parameters** section in the menu to see the list of parameters.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

Shutdown Parameters

Help

Pulsar M 2200

Computer Room

Output	On battery	System Shutdown	Restart
<div><div></div><div>Master</div></div>	<div><div>Shutdown</div><div>if Remaining time under: 180 sec</div><div>if Capacity under: 20 %</div><div><input type="checkbox"/> after: 30 min</div></div>	<div>Shutdown duration : 120 sec</div>	<div>If Capacity exceeds: 15 %</div>
<div><div></div><div>Group1</div></div>	<div><div>Switch Off</div><div>after: 900 sec</div><div>if Capacity under: 75 %</div></div>	<div>Shutdown duration : 120 sec</div>	<div>Switch On after: 30 sec</div>
<div><div></div><div>Group2</div></div>	<div><div>Switch Off</div><div>after: 1800 sec</div><div>if Capacity under: 68 %</div></div>	<div>Shutdown duration : 120 sec</div>	<div>Switch On after: 18 sec</div>

☒ Show advanced parameters

Save modified settings :

Save

When you tick the **Show advanced parameters** option, extra parameters are displayed. These parameters enable, in particular, adjustment of certain thresholds related to the percentage of remaining battery charge level.

The Output column enables each outlet to be named (maximum 20 characters).

Note

As priority is given to the main outlet, the card cannot supply the controlled outlets when main outlet power is off.

For the main outlet ("Master" by default)

The first shutdown criteria initiates the restart of the [shutdown sequence](#).

- **If remaining time is under** (0 to 99999 seconds, 180 by default) is the minimum remaining backup time from which the shutdown sequence is launched.
- **If battery capacity is under** (0 to 100%); this value cannot be less than that of the UPS and is the minimum remaining battery capacity level from which the shutdown sequence is launched.
- **Shutdown after** (0 to 99999 minutes, not validated by default) is the operating time in minutes left for users after a switch to backup before starting the shutdown sequence.
- **Shutdown duration** (120 seconds by default) is the time required for complete shutdown of systems when a switch to backup time is long enough to trigger the shutdown sequences. It is calculated automatically at the maximum of Shutdown duration of subscribed clients but can be modified in the Advanced mode.
- **If battery capacity exceeds** Minimum battery level to reach before restarting the UPS after utility restoration

Important: Certain UPSs do not support this option

For the controlled outlets ("group 1 or group 2" by default)

The page enables programming of operation time and level in backup mode to manage outlet load shedding in the event of electric power failure:

- **Switch Off after** (from 0 to 99999, 65535 by default) defines the time during which the outlet is supplied starting from the moment of utility failure. Caution, this time includes the outlet shutdown duration.
- **Switch Off if battery capacity under** (0 by default) is an extra condition for outlet shutdown that can trigger the shutdown sequence before the shutdown duration runs out.
- **Shutdown duration** is the time required for complete shutdown of the systems supplied by the outlet when an outlet shutdown sequence is launched.
It is calculated automatically using the maximum shutdown durations of notified applications on the outlets.
- **Switch On after** (from 0 to 99999, default 65535) is the period between main output startup and startup of the relevant programmable outlet, therefore outlet startup can be delayed in relation to the main output.

Important: Certain UPSs do not support this option

4.2.7 Measurements

Click on "*Measurements*" in the menu

The next window shows the measurements for a single phase UPS.

Network Management Card

UPS <ul style="list-style-type: none">UPS PropertiesUPS ControlWeekly ScheduleShutdown Parameters Logs and Notification <ul style="list-style-type: none">MeasurementsEvent LogSystem LogEmail Notification Settings <ul style="list-style-type: none">NetworkSystemNotified ApplicationsAccess ControlTimeFirmware Upload	Measurements Help									
	Pulsar M 2200 Computer Room Save Log Clear Log									
Date	Time	AC Normal		AC Output				Battery		
		Voltage	Frequency	Voltage	Frequency	Power (kVA)	Load level(%)	Capacity(%)	Remaining time(mn)	
2008/06/12	17:56:47	241	50.0	231	50.0	0.1	2	99	125	
2008/06/12	17:55:47	241	50.0	232	50.0	0.0	3	99	125	
2008/06/12	17:54:47	242	50.0	230	50.0	0.0	2	99	125	
2008/06/12	17:53:47	241	50.0	230	50.0	0.0	2	99	125	
2008/06/12	17:52:47	241	50.0	231	50.0	0.0	2	99	111	
2008/06/12	17:51:47	245	50.0	232	50.0	0.0	2	99	125	
2008/06/12	17:50:47	243	50.0	231	50.0	0.0	2	99	125	
2008/06/12	17:49:47	243	50.0	230	50.0	0.1	2	99	125	
2008/06/12	17:48:47	243	50.0	231	50.0	0.0	2	98	124	
2008/06/12	17:47:47	243	50.0	230	50.0	0.0	2	98	124	
2008/06/12	17:46:47	243	50.0	231	50.0	0.0	2	98	124	
2008/06/12	17:45:47	243	50.0	231	50.0	0.0	2	98	124	
2008/06/12	17:44:47	243	50.0	230	50.0	0.0	2	98	124	
2008/06/12	17:43:47	243	50.0	230	50.0	0.0	2	98	124	
2008/06/12	17:42:47	243	50.0	230	50.0	0.1	2	98	124	
2008/06/12	17:41:47	243	50.0	231	50.0	0.1	2	98	124	
2008/06/12	17:40:47	243	50.0	231	50.0	0.0	2	98	124	

The following measurements are saved and time-stamped (About. 430):

- **AC Normal : Voltage:** Value of the utility voltage supplying the UPS
- **AC Normal : Frequency:** Value of the utility frequency supplying the UPS
- **AC Output : Voltage:** Value of the output voltage of your UPS
- **AC Output : Frequency:** Value of the output frequency of your UPS
- **AC Output : Power (kVA):** Value of the output power of your UPS
- **AC Output : Load level (%):** Value of the percentage of load at UPS output
- **Battery : Capacity (%):** Percentage of charge available in the battery
- **Battery : Remaining time (mn):** Estimation of the remaining backup time

The save frequency of these values is defined in the "[System](#)" page (60 seconds by default). Approximately 435 time-stamps are stored permanently on the card. The oldest time-stamps are automatically deleted.

Save Log enables all saved values to be opened or saved in CSV format. (compatible with Excel type spreadsheets)

Clear Log enables deletion of all records. Enter the login/password to validate this action.

4.2.8 Event log

Click on **Event Log** in the menu

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log**
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

Event Log

Pulsar M 2200

Save Log

Clear Log

Date	Time	Event Description
2008/06/12	18:03:43	UPS on normal AC
2008/06/12	18:03:43	Normal AC OK
2008/06/12	18:03:41	Bypass AC voltage OK
2008/06/12	18:03:41	Normal AC voltage OK
2008/06/12	18:01:11	Bypass AC voltage out of tolerance
2008/06/12	18:01:11	Normal AC voltage out of tolerance
2008/06/12	18:01:10	Outlet group 2 shutdown in 28 mn 00 s
2008/06/12	18:01:10	Outlet group 1 shutdown in 13 mn 00 s
2008/06/12	18:01:10	System shutdown in 1 h 40 mn 20 s
2008/06/12	18:01:09	UPS on battery
2008/06/12	18:01:09	Normal AC NOK

Help

Computer Room

- **Save log** enables all saved values to be opened or saved in CSV format. (compatible with Excel type spreadsheets)
- **Clear log** enables deletion of all records. The administrator must enter his/her login / password to validate this action.

The card can save 435 events. The table of managed alarms is included in the [appendix](#).

4.2.9 System log

Click on **System log**. in the menu

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log**
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

System Log

Pulsar M 2200

Save Log

Clear Log

Help

Computer Room

Date	Time	Event Description
2008/06/13	11:16:05	Environment sensor : Communication failure
2008/06/13	11:15:01	Network Management Card startup
1970/01/01	00:00:00	Time synchronized by NSM or EPM with 2008/06/13 11:13:50 [166.99.224.246]

- **Save log** enables all saved values to be opened or saved in CSV format. (compatible with Excel type spreadsheets)
- **Clear log** enables deletion of all records. The administrator must enter his/her login / password to validate this action.

The card can save 435 events. The table of managed alarms is included in the [appendix](#).

4.3 Notification

4.3.1 Email Notification



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

The card offers the possibility of redirecting UPS alarms to an e-mail server. The format of these e-mails is compatible with mobile telephone transfer systems using text messages (SMS).

SMS notification requires the use of a third-party application that converts emails to SMS.

The screenshot displays the 'Network Management Card' web interface. The left sidebar contains a navigation menu with sections: 'UPS' (UPS Properties, UPS Control, Weekly Schedule, Shutdown Parameters), 'Logs and Notification' (Measurements, Event Log, System Log, Email Notification), and 'Settings' (Network, System, Notified Applications, Access Control, SNMP, Time, Firmware Upload). The main content area is titled 'Email Notification' and includes a 'Help' link. Below the title, it shows 'Evolution 650' and 'Computer Room'. The interface is divided into two main panels. The left panel, 'Recipient list', shows a list of email addresses (recipient1@domain.com, recipient2@domain.com, recipient3@domain.com, recipient4@domain.com) with a 'Save' button. Below this, the 'Recipient' field is set to 'recipient1@domain.com', with a 'Disabled' dropdown and an 'Email' checkbox. The 'Attached files' section has checkboxes for 'Measurements', 'Event Log', and 'System Log'. The 'Periodic report' section shows 'Every 0 day(s) at 00:00' with a 'Test' button. The right panel, 'Notified events for the selected Recipient', lists events under 'Battery operation' and 'UPS alarms'. 'UPS on battery' and 'UPS OT sequence in progress' are under 'Battery operation', with the latter checked. 'Battery fault', 'UPS overload', and 'UPS fault' are under 'UPS alarms', with the latter checked. 'Show/Hide Events' and 'Set Default' buttons are at the bottom of this panel. At the bottom of the main area, there are links for 'Email Message Settings', 'Configure SMTP Server on', and 'Network Settings'.

Recipient List:

On the left side of this page, up to four recipients can be configured to receive e-mails from the card. Each addressee has its own trigger events, selected from the right side of the page, for which an e-mail is sent. The card's log indicates e-mail transmission errors.

Each recipient is configured with the following parameters:

- **Recipient:** (Field is limited to 99 characters) this is the e-mail address of the person or department to receive the e-mail.
The default value is : recipientx@domain.com
- **eNotify:** This parameter enables communications to the Eaton eNotify Monitoring and Diagnostics Service. NOTE: Available only for customers with a valid eNotify Service Contract.
- **Attached files:** The files selected (Measurements, Event log, System log, Environment measurements) are enclosed with each e-mail sent. The files are sent in CSV format
- **Periodic report:** In addition to the e-mails sent when events occur, a periodic e-mail containing the 3 log files (or 4 when the optional Sensor is connected) can be sent to the recipient every x days at the time specified by the user.
To configure the first transmission, specify the day, time and frequency of the next transmission in the "next report" box. After this date, the page will show the date and time of the next transmission. Data are sent in CSV format.
- **Save:** Saves any modifications.
- **Test:** enables an e-mail to be sent to the recipient immediately. This is one way of checking e-mail transmission, particularly access to the SMTP server configured in "Network" settings. A transmission report is added to the system log.
The event label in the subject and text of the message is replaced with a test label.
If the user makes any modifications to the page, they must be saved before using the "Test" function.

Notified events:

- The right side of the page shows the events that can be notified.
By default, only the main events of battery operation and a few UPS alarms are accessible. All the events appear if the Show/Hide Events option is actuated.
By default, two events are selected for notification. The user can modify this pre-selection by ticking other events or can, on the contrary, restore the initial configuration by clicking Set Default.
- **Email Message Settings:** access to the message configuration page
- **Network Settings:** enables the name of the SMTP server to be entered. [See page](#)

4.3.2 E-mail Message Settings

This page enables customisation of the content of the messages received by recipients of e-mails sent by the card.

Customisation is common to the four recipients that can be notified (see [E-mail notification](#)).

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

Email Message Settings [Help](#)

Pulsar M 2200 **Computer Room**

These settings are common for all the recipients, which can be notified by E-mail.

Sender :

ups@domain.com

Subject :

Network Management Card - <Event message>

Network Management Card

☐ UPS Name

☐ UPS Location

☒ Event message

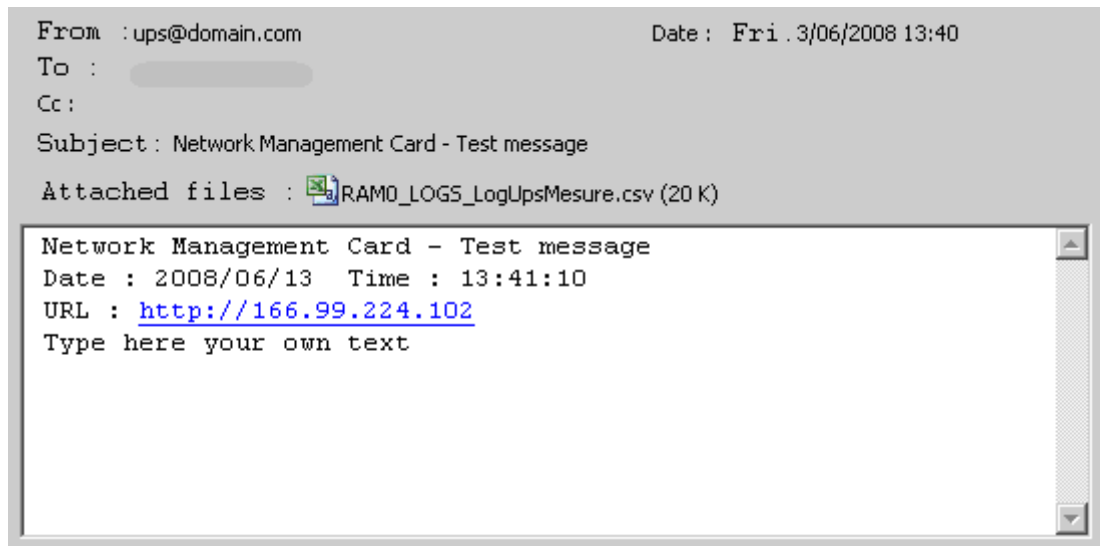
Message text :

Type here your own text

Save

- **Sender:** (59 characters maximum) identifies the source of the message. The default value is *ups@domain.com*.
This field is free. However, depending on the type of SMTP server configuration, it is possible that the server checks that the domain name contained in the Sender address exists, and even that the user in the Sender address belongs to this domain.
- **Subject:** enables the user to specify the subject of the e-mail to be sent. By entering some free text and selecting from several optional fields, if desired, the message subject is built:
 - UPS name recalls the name of the UPS; it may or may not be selected.
 - UPS location recalls the geographic location of the UPS (see System Settings); it may or may not be selected.
 - Event message identifies the event generating the e-mail; it may or may not be selected.
- **Message text** is a free zone long of 255 characters maximum.
The body of the e-mail sent is composed of:
 - Message text, which is free text.
 - The date and time of the event, as saved in the log.
 - URL of the card, enabling a direct link with the card to be established.

- Attachments, as configured for the e-mail recipients.
- Duplication of the subject, as configured.



4.4 Configuration


4.4.1 Network settings

Click on **Network** in the menu.



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

This menu enables the administrator to configure the network parameters of the card and authorisation of the remote upgrade of the embedded system.


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Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- SNMP
- Time
- Firmware Upload

Network Settings

Help

Pulsar 1000 RT2

Computer Room

BootP/DHCP :	Enabled
IP address :	166.99.224.87
Subnet Mask :	255.255.255.0
Gateway Address :	166.99.224.1
Hostname :	ups7
Domain Name :	ups.domain.com
<input checked="" type="checkbox"/> IPv6 Enabled	
<input checked="" type="checkbox"/> IPv6 Auto Config Enabled	
IPv6 Address 1 :	2001:720:410:100A:220:85FF:FEFD:FF07
Prefix length :	64
IPv6 Gateway :	
IPv6 Local Address :	FE80::220:85FF:FEFD:FF07
IPv6 Address 2 :	1789:720:410:100A:220:85FF:FEFD:FF07
Firmware Upload :	Enabled
Primary DNS Server (IPv4 or IPv6) :	151.110.239.25
Secondary DNS Server :	151.110.239.27
SMTP Server (for Email Notification) :	smtpserver
<input type="checkbox"/> SMTP server authentication	

Save modified settings : Save

- **BOOTP/DHCP:** Authorises (choose "Enabled") configuration of network parameters with your BootP/DHCP server when the card is booted.

Sequence with Bootp/DHCP server: After each startup, the card makes 3 attempts to recover the network parameters. If no response is received from the server, the card boots with the last saved parameters from the previous start. These parameters are those shown on the page.

The default value for this parameter is "Enable"

Note 1:

If the hostname is not used, the IP address supplied by the DHCP server must be fixed to maintain connection with the clients installed on the stations to be protected.

Note 2:

During the first connection, if the DHCP query is not successful, the NMC starts with the following IP configuration:

Default IP address: 192.168.1.2

Subnet mask: 255.255.255.0

Gateway Address: 0.0.0.0

- **IP Address:** The IPv4 address of the card (e.g.: 166.99.22.252).
- **Subnet Mask:** The mask of the sub-network of your IPv4 network (e.g.: 255.255.248.0).
- **Gateway Address:** Indicate the IP address of the gateway to access the stations located outside the card's subnet . (e.g.: 166.99.17.1).
- **Hostname** must be suited to the card. This is the first part of the fully qualified domain name, used by the DNS.
As the card does not support NetBIOS protocol, the hostname will only be sent to DNS if the DHCP server sends it the hostname with the new IP address. This mechanism is described in the update of the DNS protocol [RFC 2136](#)
- **Domain Name** is the domain to which the card belongs. This is the part of the fully qualified domain name that follows the hostname and is used by the DNS. The default value of the two parameters comprising the fully qualified domain name: ups.domain.com
- **IPv6 Enabled:** Authorises (choose "Enabled") IPv6 support.
- **IPv6 Auto Config Enabled:** Authorises (choose "Enabled") the card to obtain configuration of IPv6 parameters from an IPv6 router. In this case, none IPv6 parameters are editable.
- **IPv6 Address 1:**
 - If Auto Config is enabled: this field displays the first IPv6 address built from the IPv6 router (not editable).
 - If Auto Config is not enabled: this field is editable and allows setting a static IPv6 address.
- **Prefix length:**
 - If Auto Config is enabled: this field displays the prefix received from router (not editable).
 - If Auto Config is not enabled: this field is editable and allows setting a prefix.
- **IPv6 Gateway:**
 - If Auto Config is enabled: this field is empty and not editable.
 - If Auto Config is not enabled, this field is editable and allows setting the default gateway.
- **IPv6 Local Address:** display the IP local address of the card, build from the MAC address. This field

is not editable. Always available when the IPv6 is enabled.

- **IPv6 Address 2:**
 - If Auto Config is enabled: this field displays the second IPv6 address built from the IPv6 router (not editable).
 - If Auto Config is not enabled, this field is empty and not editable.
- **Firmware Upload:** Authorise (chose "Enabled") remote updating of the card's embedded software. The default value for this parameter is "Enabled".
- **Primary DNS Server:** contains the IPv4 or IPv6 address of the main DNS server ensuring conversion of the domain name to IP address.
- **Secondary DNS Server:** contains the IPv4 or IPv6 address of the secondary DNS server ensuring conversion of the domain name to IP address if the primary DNS server is not available.
- **SMTP Server:** contains the name or IP address of the local server with which the card connects to send e-mails.
It may be filled in either as host + domain name (DNS resolution), or directly with the IP address. The default value is smtpserver. The card uses the standard port (25) for sending e-mails.
- **SMTP Server Authentication:** Displays **login** and **password** fields in order to connect the NMC card to a SMTP Server that requires an authentication.

Important note:

The card must be rebooted after any changes to these parameters. [See "System" page](#)

4.4.2 System

Click on **System** in the menu.



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

This menu enables the customisation of the information on the [UPS properties](#) pages.

Network Management Card

UPS	System Settings	Help
<ul style="list-style-type: none">UPS PropertiesUPS ControlWeekly ScheduleShutdown Parameters	<p>Pulsar M 2200</p> <p>UPS Contact : <input type="text" value="Computer Room Manager"/></p> <p>UPS Location : <input type="text" value="Computer Room"/></p> <p>Default Language : <input type="text" value="Auto"/></p> <p>History log interval (sec): <input type="text" value="60"/></p> <p>Environment log interval (sec): <input type="text" value="300"/></p> <p>Save modified settings : <input type="button" value="Save"/></p> <p><input checked="" type="checkbox"/> Keep TCP/IP parameters</p>	<p>Computer Room</p>
Logs and Notification <ul style="list-style-type: none">MeasurementsEvent LogSystem LogEmail Notification	<p><input type="button" value="Reset Communication"/></p> <p><input type="button" value="Factory Reset"/></p>	
Settings <ul style="list-style-type: none">NetworkSystemNotified ApplicationsAccess ControlTimeFirmware Upload		

- **UPS Contact:** This text field is limited to 49 characters. Enter the name of the person responsible for UPS administration at IT network level and/or electrical maintenance. This field does not appear on any other Web page. By default, its value is "Computer Room Manager".
- **UPS Location:** Enter a description (limited to 31 characters) of the location of the UPS in your installation (e.g. Computer room E1-C066). This text is displayed in the home page. By default, its value is "Computer Room".
- **Default Language:** Enables initialisation of the browser language at card connection. Choice of one of the available languages: English, French, German, Spanish, Italian, Chinese Traditional, Chinese simplified, Japanese, Portuguese, Russian, Korean changes the language of the html interface pages (Refresh the web page <F5> after modification).
- **History log interval:** [from 5 to 99999 sec., 60 by default]. Measurement save period.
- **Environment log interval:** [from 60 to 99999 sec., 300 by default]. Temperature and humidity measurement save period.
- **Reset Communication button:** performs a remote reboot of the card without modifying the configuration. This action is compulsory for consideration of any changes made on the "Network Settings" page.
- **Factory Reset button:** enables restoration of the default configuration of all the card's parameters. TCP/IP parameters: IP address, subnet mask, gateway and BootP/DHCP value are maintained if the "Keep TCP/IP parameters" option is selected.

4.4.3 Notified Applications

Click on **Notified Applications** in the menu.



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

This menu enables:

- The addition of the supervision stations receiving traps and configuration of the trap type.
- To list all the Notified Applications and the main parameters.
- To test the operation of notified applications by simulating power loss by sending a real shutdown sequence.

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

Notified Applications

Help

Pulsar M 2200

Computer Room

All	Nr	Hostname or IP Address	Application Name	Output	Configuration	Shutdown duration(sec)	Shutdown after (min)	Connected
<input type="checkbox"/>	1	grefrwe8000769	Shutdown Module V3.10	Master	CENTRALIZED	120		
<input type="checkbox"/>	2	GREFRWC9978046	Shutdown Module V3.10	Master	CENTRALIZED	120		

Select the applications to be removed.

Remove

Select the applications to be tested.

Utility failure Test

Shutdown Test

Select the Network-Management-System to be modified.

Modify NMS

Add NMS

Up to 100 destinations can be managed by the card:

- 35 in TCP connected mode or
- 100 in UDP not connected mode or
- mixed mode: 20 connected and 50 not connected.

Important note: It is not necessary to add the Network Shutdown Modules protecting your servers in this list. These modules subscribe and unsubscribe themselves automatically.

Select an entry in the list to modify the values in the edit zone at the bottom of the page. The table displays the following information:

- **All**: selects all the lines.
- **Nr**: the index where the application is stored into the table.

- **Hostname or Address IP:** By priority, the hostname of the computer is displayed when the IP address can be converted into a hostname by a DNS server or if the application has been entered as a hostname.
- **Application Name:** Given by the application at subscription time.
- **Output:** number of the UPS output from which the client is powered.
- **Configuration:** shows where the parameters of the Network Shutdown Module come from: Local (coming from the application) or Central (coming from the card).
The [Central shutdown configuration](#) is available by clicking on the **Configuration** link.
- **Shutdown duration:** the shutdown duration necessary to properly shutdown the computer.
- **Shutdown after:** the time available to the user from the power failure until the launch of the shutoff sequence of the UPS and equipment. This parameter is optional.
- **Connected:** This value is set to YES if the notified application connects through TCP protocol.

Many actions are available on this page:

- **Remove:** Depending on the kind of application, the selected ones will definitively disappear from the table as SNMP applications, or they will disappear and automatically re-subscribe as Network Shutdown Module applications.
 - **Utility failure Test:** Two alarms, 'Utility failure' and 'Utility restored' spaced 60 seconds apart, will be sent to the applications selected, making sure that the applications can be reached over the network.
 - **Shutdown Test:** This test simulates a UPS low battery sequence. It enables an easy check to see if the server protection works correctly.
 - No intervention on the UPS is required.
 - The applications selected will process the simultaneous alarms and perform an actual shutdown sequence.

WARNING!

 - This test will generate a REAL shutdown sequence of the selected servers on which the Network Shutdown Module application is running.
 - **Add NMS:** allows an SNMP trap receiver to be added such as a Network Management System.
 - **Modify NMS:** allows an SNMP trap receiver to be modified.
- Both buttons open a new window where it is possible to enter the Application name, the Hostname or IP Address, the protocol version needed: V1, V3 or both, the Trap community (only used in V1) and the filter on the several implemented Mibs.

UPS <ul style="list-style-type: none"> UPS Properties UPS Control Weekly Schedule Shutdown Parameters Logs and Notification <ul style="list-style-type: none"> Measurements Event Log System Log Email Notification Settings <ul style="list-style-type: none"> Network System Notified Applications Access Control SNMP Time Firmware Upload 	Network Management System Pulsar 1000 RT2 Computer Room Application Name : <input type="text"/> Hostname or IP address : <input type="text"/> Protocol : <input type="text" value="V1&V3"/> <hr/> Trap Community : <input type="text"/> MIB filter: <input checked="" type="checkbox"/> Pulsar <input type="checkbox"/> IETF <input type="checkbox"/> Powerware <div style="text-align: right;"> <input type="button" value="Cancel"/> <input type="button" value="Save"/> </div>
---	--

By default, the Mib filter selected corresponds to UPS: Pulsar or Powerware.

4.4.4 Central shutdown configuration

Note: Intelligent Power® Manager provides more advanced configuration management features

Click on **Notified Applications** in the menu, then **Configuration**.

UPS <ul style="list-style-type: none"> UPS Properties UPS Control Weekly Schedule Shutdown Parameters Logs and Notification <ul style="list-style-type: none"> Measurements Event Log System Log Email Notification Settings <ul style="list-style-type: none"> Network System Notified Applications Access Control Time Firmware Upload 	Central shutdown configuration Help Pulsar M 2200 Computer Room This configuration will be used by the Network-Shutdown-Modules, on next connection. <hr/> Shutdown Parameters <div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input type="checkbox"/> Shutdown after: <input type="text" value="30"/> min </div> <div> Shutdown duration : <input type="text" value="120"/> sec </div> </div> <hr/> Broadcast <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Administrators <input checked="" type="checkbox"/> Users <div style="text-align: right;"> <input type="button" value="Save"/> </div>
---	---

This page is used to define either the "shutdown" or the "notification" settings used by the Network Shutdown

Modules that connects to Network Management Card. These settings are used by the Network Shutdown Modules if they are in central-configuration mode or if their configuration is not valid.

- **Shutdown duration:** the shutdown duration necessary to properly shutdown the computer.
- **Shutdown after:** the time available to the user from the power failure until the launch of the shutoff sequence of the UPS and equipment. This parameter is optional. Uncheck the box if you wish not to use this parameter.
- **Broadcast :** Sends network notifications to the **Administrators** and **Users** groups on events declared in the server hosting the NSM

If you wish to set up a new configuration for the Network Shutdown Modules already set to "central-configuration mode", proceed as follows:

- Change the Network Shutdown Module parameters in the "Notified Applications" page.
- Click the "Save" button.
- In this page, select the NSMs for which you want to apply the new configuration.
- Press the "Remove" button.
- The NSMs selected will disconnect then reconnect and use the new configuration.

4.4.5 Access control

Click on **Access Control** in the menu.



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

This menu enables configuration of the different parameters enabling secure access to the card via a browser.

- **Enter New Manager Login:** The login user name. This text field (limited to ten characters) enables secure access and modification of pages. Default value is admin.
- **Enter New Password:** This text field (limited to ten characters) enables secure access to Configuration menu pages. Default value is **admin**.
- **Confirm New Password:** Re-enter the new password.
- **Security mode:** Manages the various authentication methods for page access:
 - Authentication for configuration:** Only the configuration pages are protected by login / password
 - Full authentication:** All pages are protected by login / password
 - SSL and full authentication:** All pages are protected by login / password and are only accessible in SSL

SSL Access: When selected, access to the Web interface is made in secure mode (https).

Connections with Network Shutdown Modules stay in standard mode (secure TCP)

SSL Security Implementation:

SSL	→ version 3.0
TLS	→ version 1.0
Method	→ TLS_RSA_WITH_512_MD5
Auth	→ RSA
Key Exchange	→ RSA
Encryption	→ RC4_512
Digest	→ MD5

Changes take effect after a card reboot

- **Save:** Saves any modifications.

4.4.6 SNMP Setting

Click on **SNMP** in the menu.

To access this page, the login and password are systematically requested if they have not already been entered.

This menu enables configuration of the SNMP security parameters.

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Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- SNMP
- Time
- Firmware Upload

SNMP Settings Help

Pulsar 1000 RT2 Computer Room

SNMP Version : V1&V3

SNMP V1 Setting

Community Read-Only : public

SNMP Write : Enabled

Community Write : private

SNMP V3 Setting

Read-Only User : readuser

Read-Only Security Level : Auth No Priv

Read-Only Password : *****

Read-Write User : writeuser

Read-Write Security Level : Auth Priv

Read-Write Password : *****

Notification Username : notiuser

Save modified settings : Save

- **SNMP Version:** This field allows the user to select the snmp protocol version: {Disabled, V1, V3 are supported by the card}.
- **SNMP Community Read-Only:** The SNMPv1 Read community name that identifies a sub-group attached to a network manager or a logical entity. The card and the clients must share the same community name to communicate.
- **SNMP Write Enabled:** Enables SNMP write function.
SNMP Community Write: Displays only if SNMP Write is enabled. The SNMPv1 Write community name that identifies a sub-group attached to a network manager or a logical entity. The card and the clients must share the same community name to communicate.

- **Read-Only User:** identifies the login of the user in the SNMPv3 version which is authorized to read only SNMP variables.
- **The Read-Only Security Level:** selects the security level
 - No Auth No Priv: the user must not use authentication and privacy to access to SNMP variables.
 - Auth No Priv: the user must use authentication and NOT privacy to access to SNMP variables.
 - Auth Priv: the user must use authentication and privacy to access to SNMP variables.
- **The Read-Only Password:** allows administrator to specify a new password for the Read-Only User. Its length must be ranging between 8 and 24 characters and used only letters, numbers and <>@#%_=:;,./?\$*() symbols.
- **The Read-Write User:** identifies the user in the SNMPv3 version which is authorized to read and write SNMP variables.
- **The Read-Write Security Level:** selects the security level:
 - No Auth No Priv: the user must not use authentication and privacy to access to SNMP variables.
 - Auth No Priv: the user must use authentication and NOT privacy to access to SNMP variables.
 - Auth Priv: the user must use authentication and privacy to access to SNMP variables.
- **The Read-Write Password:** allows administrator to specify a new password for the Read-Write User. Its length must be ranging between 8 and 24 characters and used only letters, numbers and <>@#%_=:;,./?\$*() symbols.
- **The Notification username:** allows administrator to specify the “username” field for SNMPV3 notifications. This field has to also be defined in the applications that received those notifications.
- **Save:** Saves any modifications.

4.4.7 Date and time

Click on **Date and Time** in the menu.

This menu enables initialisation of the date and time of the card in three different ways.

The date format is always of year/month/day type

Network Management Card

UPS	Setting time	Help
<ul style="list-style-type: none">UPS PropertiesUPS ControlWeekly ScheduleShutdown Parameters	Pulsar M 2200	Computer Room
Logs and Notification	Current date and time	
<ul style="list-style-type: none">MeasurementsEvent LogSystem LogEmail Notification	Date (yyyy/mm/dd): 2008/06/13	
	Time (hh:mm:ss): 14:38:44	
Settings	Setting time	
<ul style="list-style-type: none">NetworkSystemNotified ApplicationsAccess ControlTimeFirmware Upload	<input type="radio"/> Set manually	
	Date (yyyy/mm/dd): 2008/06/13	
	Time (hh:mm:ss): 14:38:44	
	<input checked="" type="radio"/> Accept automatic update from NSM or EPM	
	<input type="radio"/> Synchronize with NTP server	
	Hostname : ntpserver	
	Time-Zone : (GMT) Casablanca, Greenwich Mean TIME : Dublin, Lisbon, London	
	<input type="checkbox"/> European Daylight Savings Time	
	Save modified settings : <input type="button" value="Save"/>	

- **Set manually:** Enables initialisation of the date and time of the card, with the values entered in the Date and Time fields. This update is made after clicking on the **Save** button.
Maximum drift is +/- 2 min./month
- **Accept automatic update from NSM or IPM:** Enables initialisation of the date and time of the card, with the values provide by the Network Shutdown Modules or the Intelligent Power Manager.

- **Synchronize with NTP server:** Enables connection with a time server, either available on the company's internal network or on the Web. This server communicates GMT time. The IP address or hostname of the time server must be entered, and the time zone of your geographic area must then be selected from the list. Connection is made with the server and the date and time are set after clicking on the "Save" button. Time is updated every five hours, thus preventing any drift in the time. After two attempts, if the NTP server is not accessible, the card resends periodic requests. The card uses the NTP protocol (UDP 123 port). The "firewall" must be configured to transmit queries outside the intranet. When ntp could not be contacted, an error message is issued at the top of the web page.

Note 1:

The even the card is used in a UPS supporting time-stamping, the card's time is automatically synchronized with that of the UPS.

Note 2:

After start-up, if the card is in manual mode or if no NTP server was reached, the card initializes at 01/01/1970

4.4.8 Firmware upload

Click on **Firmware Upload** in the menu.

This menu enables a new firmware version to be uploaded

Network Management Card

The screenshot shows the 'Firmware Upload' page of the Network Management Card interface. On the left is a sidebar menu with three main sections: 'UPS' (containing 'UPS Properties', 'UPS Control', 'Weekly Schedule', and 'Shutdown Parameters'), 'Logs and Notification' (containing 'Measurements', 'Event Log', 'System Log', and 'Email Notification'), and 'Settings' (containing 'Network', 'System', 'Notified Applications', 'Access Control', 'Time', and 'Firmware Upload', which is highlighted). The main content area has a header bar with 'Firmware Upload' on the left and 'Help' on the right. Below the header, it displays 'Pulsar M 2200' and 'Computer Room'. A section titled 'Firmware to Upload :' contains a text input field, a 'Parcourir...' button, and an 'Upload' button. Below this, a warning message states: 'WARNING: This action takes a few minutes. Don't click on any button or item during this operation.'

To upload a new version of the card's firmware, select the file to be loaded using the **Browse...** button and click Upload.

Do not interrupt the operation before the card displays the following screen:

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- **Firmware Upload**

Firmware UploadHelp

Pulsar M 2200Computer Room

Firmware to Upload :

Parcourir... Upload

WARNING: This action takes a few minutes.
Don't click on any button or item during this operation.

SUCCESS : Firmware was successfully written in FLASH.
Restart in progress. Wait a few minutes and click on Refresh button.

4.5 Environment Sensor (option)

The environment sensor (66846) is an option that enables temperature and humidity to be measured, and indication of the position of two external contacts. It is connected with a standard network cable to the Card Settings port of the Network Management Card.

The card automatically detects sensor presence. The main menu then displays an additional section "Environment" with the following elements:

- Status
- Configuration
- Log

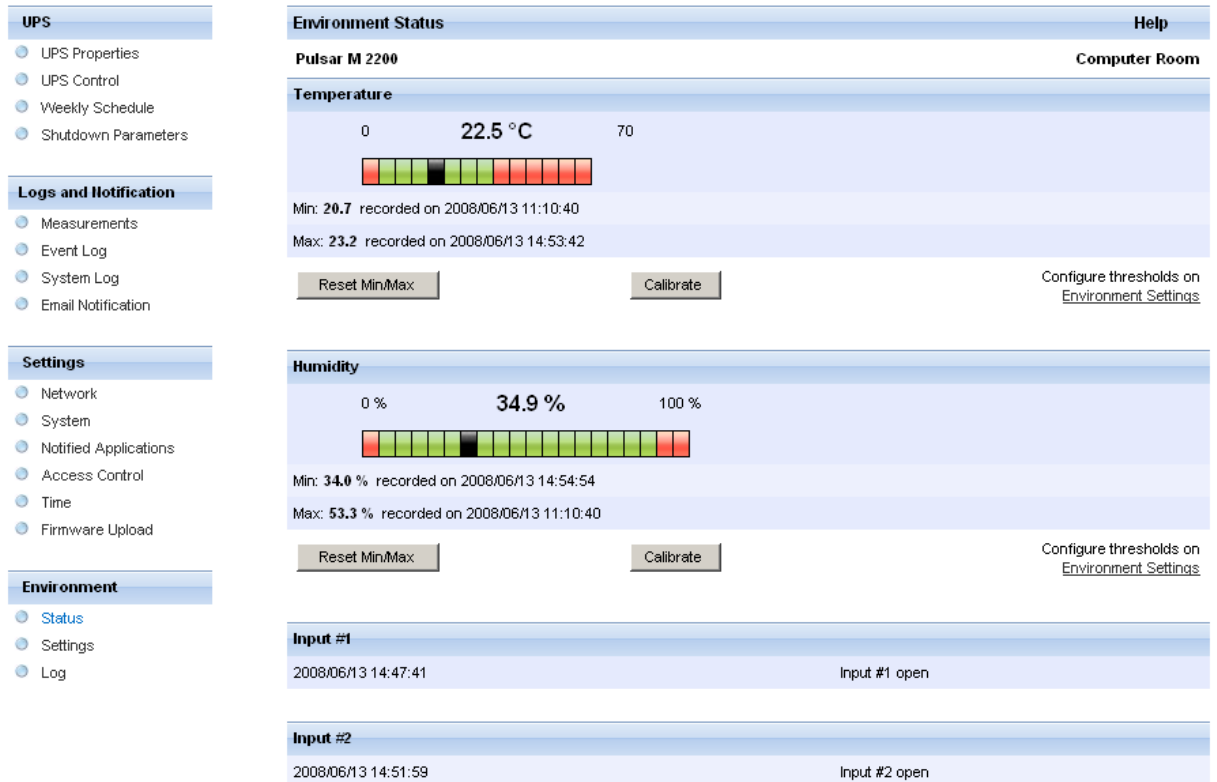
Important note: To switch the serial port to the configuration mode, just disconnect the cable and [reset the card](#).

4.5.1 Characteristics

- Temperature measurement from 0 to 70 °C with +/- 1°C accuracy
- Measurement of humidity from 0 to 100% with +/- 6% accuracy
- Min / max time-stamped function for temperature and humidity
- Choice of temperature readings in Celsius or Fahrenheit
- High and low thresholds, hysteresis and offset adjustable via Web interface
- Possibility of notification of status changes by e-mail, SMS or SNMP trap
Note: SMS notification requires the use of a third-party application that converts emails to SMS
- Position detection of 2 dry contacts (maximum sensor/contact distance: 20 m)
- Name and status of each configurable contact
- Recording of events and measurements in the card log
- Possibility of shutting down the installation safely if one of the thresholds is exceeded or dry contact status change
- Connection to the Network Management Card by shielded CAT5 straight RJ45 network cables (maximum card/sensor distance: 10m)

4.5.2 Environment Status

Network Management Card



For both measurements, a graduated gauge proposes the following functions:

The cursor indicates the current value.

Two red zones to the left and right represent the high and low thresholds that can be set on the Environment Settings page.

When the measured value enters one of these zones, an alarm can be notified (see Notification parameter in the Environment Settings page).

Time-stamped minimum and maximum temperatures show the extreme values recorded since the last Reset Min/Max, a thin dotted line shows their positions on the gauge.

Min and Max can be forced at any time to the current value by clicking on the Reset Min/Max button.

Calibrate: The sensor is factory-calibrated, but the user can apply an offset to adjust the measurement.

Input #1 and Input #2 show the position of the two contacts acquired by the sensor.

The position is displayed with the parameters entered in the Environment Settings page.

The last status change of each contact is time-stamped.

The Internet browser updates this page every 10 seconds

4.5.3 Environment Settings



NOTE If you are not already logged on, you will be prompted to enter your user name and password before accessing this page.

Network Management Card

UPS	
<input type="radio"/> UPS Properties	
<input type="radio"/> UPS Control	
<input type="radio"/> Weekly Schedule	
<input type="radio"/> Shutdown Parameters	

Logs and Notification	
<input type="radio"/> Measurements	
<input type="radio"/> Event Log	
<input type="radio"/> System Log	
<input type="radio"/> Email Notification	

Settings	
<input type="radio"/> Network	
<input type="radio"/> System	
<input type="radio"/> Notified Applications	
<input type="radio"/> Access Control	
<input type="radio"/> Time	
<input type="radio"/> Firmware Upload	

Environment	
<input type="radio"/> Status	
<input type="radio"/> Settings	
<input type="radio"/> Log	

Environment Settings				Help	
Pulsar M 2200				Computer Room	
Sensor name:		Environment sensor		Notification	System Shutdown
Temperature °C	High threshold:	40		<input type="checkbox"/>	<input type="checkbox"/>
	Low threshold:	5		<input type="checkbox"/>	<input type="checkbox"/>
	Hysteresis:	2			
Humidity	High threshold:	90	%	<input type="checkbox"/>	<input type="checkbox"/>
	Low threshold:	5	%	<input type="checkbox"/>	<input type="checkbox"/>
	Hysteresis:	5	%		
Input #1:	Input #1	closed	when closed	<input type="checkbox"/>	<input type="checkbox"/>
		open	when open	<input type="checkbox"/>	<input type="checkbox"/>
Input #2:	Input #2	closed	when closed	<input type="checkbox"/>	<input type="checkbox"/>
		open	when open	<input type="checkbox"/>	<input type="checkbox"/>

☒ Show advanced parameters

Save modified settings :

The environment sensor measures temperature, humidity and gives the status of the 2 contacts (used for door, alarms or generator unit).

The temperature and humidity thresholds can be adjusted and can trigger notification and correct shutdown of the protected system.

The Sensor name is the function name given to the sensor, usually it enables location of the sensor.

Temperature: Choose the temperature unit (°C or °F) from the selection box.

Note: Changing the temperature unit clear the log file.

High threshold: if this value is exceeded, a notification if enabled. The default value is 40 °C / 104 °F.

Low threshold: If this value is exceeded, a notification if enabled. The default value is 5 °C / 41 °F.

Hysteresis must be set to prevent multiple notifications if temperature fluctuates around a threshold.

The default value is 2 °C / -3.6 °F.

The high alarm disappears when the value drops below the High threshold - Hysteresis value

The low alarm disappears when the value returns above the Low threshold + Hysteresis value

Humidity

High threshold: If this value is exceeded, a notification is sent if this is validated. The default value is 90%.

Low threshold: If this value is exceeded, a notification is sent if this is validated. The default value is 5%.

Hysteresis must be set to prevent multiple notifications if humidity fluctuates around a threshold. The default value is 5%.

The high alarm disappears when the value drops below the High threshold - Hysteresis value

The low alarm disappears when the value returns above the Low threshold + Hysteresis value

Input #1 and Input #2: Enter an identifier corresponding to the acquired contact (e.g.: rack door, air conditioning, generator unit, etc.). Max. length is 28 characters.

when closed and when open: are the names associated to the two contact positions. (e.g.: "open" and "closed" for a door, "On" and "Off" for a generator).

Each status change triggers a notification if enabled.

When the Notification box is enabled, the following functions are activated for each event selected:

- display in the [list of current alarms](#)
- Consideration in the [UPS log](#)
- SNMP trap generation
- notification by e-mail (if the Environment sensor notification option is enabled in the [e-mail notification](#) page)

The list of messages is provided in the [appendix](#)

System shutdown can be triggered for each notification if this option is enabled. If notification is disabled, the Shutdown option cannot be used.

Export settings to file: Enables exportation ("Download" button) and saving of card configuration information.

Import settings from file: Enables selection of a configuration file ("Browse" button) and uploading ("Upload" button) of card configuration information.

4.5.4 Log

Network Management Card

UPS

- UPS Properties
- UPS Control
- Weekly Schedule
- Shutdown Parameters

Logs and Notification

- Measurements
- Event Log
- System Log
- Email Notification

Settings

- Network
- System
- Notified Applications
- Access Control
- Time
- Firmware Upload

Environment

- Status
- Settings
- Log**

Environment Log Data

Help

Pulsar M 2200

Computer Room

Save Log

Clear Log

Date	Time	Temperature (°C)	Humidity (%)
2008/06/13	16:03:53	22.1	35.7
2008/06/13	15:58:45	22.2	35.4
2008/06/13	15:53:36	22.2	36.1
2008/06/13	15:48:27	22.1	35.6
2008/06/13	15:43:18	22.1	36.0
2008/06/13	15:38:10	22.1	35.8
2008/06/13	15:33:01	22.0	35.3
2008/06/13	15:27:52	22.1	35.7
2008/06/13	15:22:43	22.1	35.3
2008/06/13	15:17:35	22.1	35.2
2008/06/13	15:12:26	22.1	35.1
2008/06/13	15:07:17	22.2	34.8
2008/06/13	15:02:08	22.5	34.9
2008/06/13	14:57:00	22.9	34.3
2008/06/13	14:51:51	22.7	36.7
2008/06/13	14:46:42	21.4	36.6

The two environment sensor measurements: Temperature and Humidity are recorded at an interval defined by the Environment log interval in the [System settings](#) page.

By default, this period is 300 seconds.

Each measurement is dated and stored in the log of the UPS's communication card.

The size of log files is limited by a time indexing system.

The user can **Save** the log on his/her workstation at any time, in a CSV format file.

The user can also **Clear** the files contained in the card to reset the log.

5 Server protection

5.1 Set-up of the shutdown parameters

The protection application: Network Shutdown Module or Netwatch, on protected server boot, subscribes itself automatically to [notified applications](#) list and sends its essential data:

IP Address or hostname of the server on which it is installed: So that the card can inform it of power events.

Time required to shutdown the server (Shutdown Duration, configurable in the "Set-up" menu of each NSM):

The card takes into account the longest shutdown time of all the Network Shutdown Modules subscribed (This is the Shutdown duration of the [Shutdown parameters](#)) page to manage UPS shutdowns without affecting any of Shutdown Modules connected.

During normal operation, the protection application periodically checks its connection with the card.

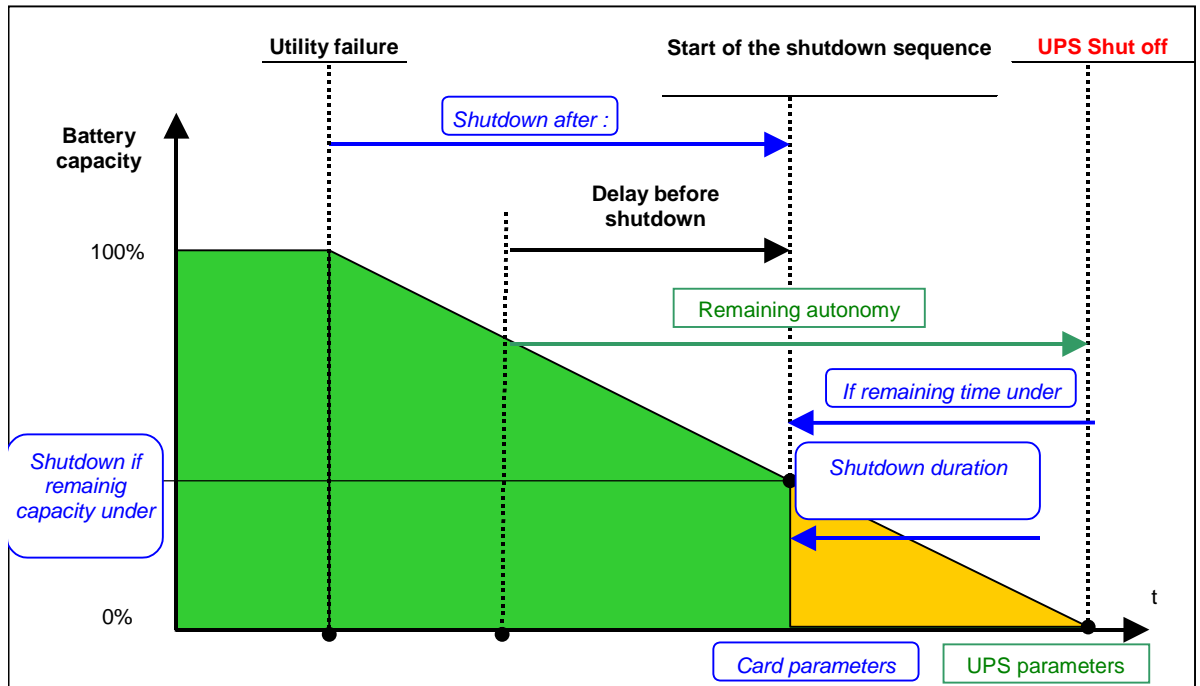
In case of a major power event, the card sends information to the protection application which reacts according to the situation. (shutdown order, programmed actions, messages to the administrator and to users via the network)

When the server shuts down, the protection application unsubscribes itself from the [notified applications](#).

5.1.1 Shutdown criteria managed by the Network Management Card

During an extended power failure, three criteria may cause the server shutdown procedure to be initiated. If several criteria are selected, (See page [Shutdown parameters](#)), the first criterion encountered will launch the shutdown procedure.

At the end of the shutdown procedure, when all servers have been shut down, the UPS may shut down to avoid unnecessary discharge of its batteries, depending on its configuration.



5.1.1.1 Backup time before initiating the shutdown procedure (Shutdown After – Shutdown Timer)

When the UPS switches to battery, the Network Management Card starts the Shutdown Timer countdown and launches the system shutdown procedure at the end of the countdown.

This value must be chosen so that users have time to complete their tasks and disconnect, without exceeding battery backup time.

Note 1:

The Network Shutdown Module can also manage its own Shutdown Timer (configurable in the Shutdown Module "set-up" menu of each Network Shutdown Module) launched when the UPS switches to battery.

Note that if this criterion is selected to initiate system shutdown, automatic system reboot when power is restored is not guaranteed (e.g. power restoration if only this system was shut down).

5.1.1.2 Initiating the shutdown procedure when the battery level is lower than: (If Capacity under)

When the card detects that the remaining backup time percentage is less than the configured level, the shutdown sequence is started.

By default, this value is set at 20%.

Note:

The UPS already manages an equivalent parameter for the end of backup pre-alarm.

The card does not accept values less than that programmed in the UPS.

Check the UPS documentation.

5.1.1.3 Shutdown when backup time is less than

When the Network Management Card detects that the percentage of backup time remaining is less than the value set, the shutdown sequence is started.

5.1.1.4 Shutdown duration

Duration (in seconds) required for the system protected by the protection application to shut down.

The protection application send their own "Shutdown duration" to the Network Management Card.

Based on these values (maximum Shutdown duration of all subscribed customer systems) that the card will send to the delayed shutdown order to the UPS.

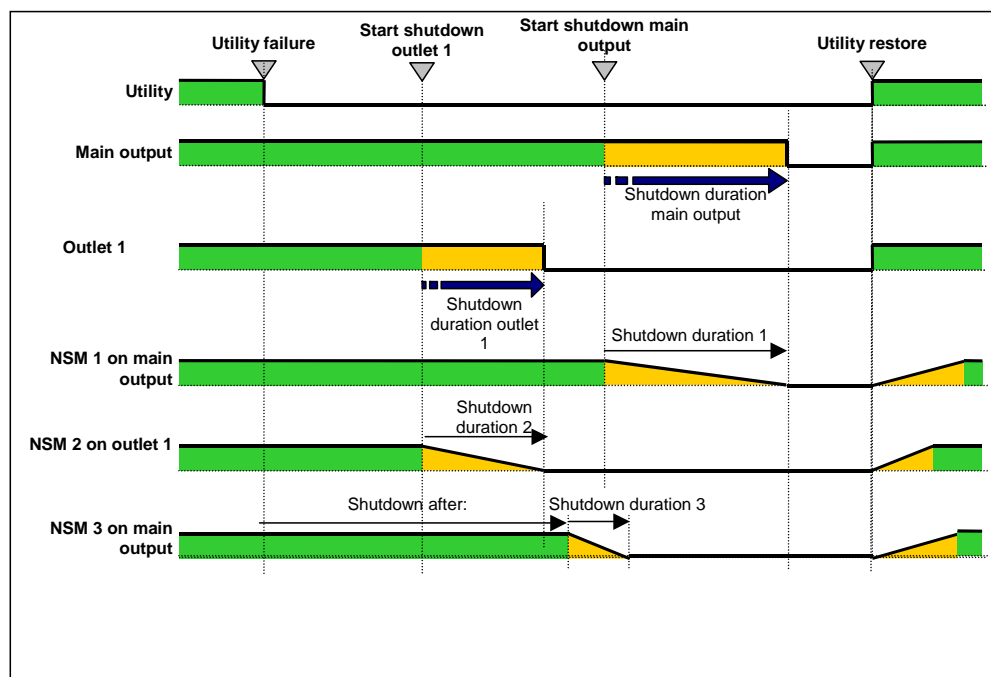
5.1.2 Controlled outlets

Certain UPS models are equipped with controlled outlets (generally 2) which are always dependant on the UPS's main outlet.

Shutdown of the main outlet systematically causes shutdown of the programmable outlets.

The following notations are used to identify these outlets:

Main outlet:	Main
Controlled outlet 1	1
Controlled outlet 2	2



5.1.3 Protection of a server connected to a controlled outlet

Network Shutdown Modules (NSM) starting with version 3.0 are compatible with the controlled outlets.

After connecting the server electrically to one of the controlled outlets, the NSM must be informed of the outlet number to which it is connected.

Refer to the documentation of the NSM available on the internet site www.eaton.com

5.1.3.1 Load shedding or sequential shutdown

It is possible to optimise backup time by shutting down non-priority equipment or sequencing the shutdown of several devices.

Two shutdown criteria are possible:

- Shutdown of outlets after a set battery back-up time (After)

- Shutdown of outlets at a given battery discharge level (if battery capacity under)

It is possible to specify values for both criteria. The first criterion reached will initiate server shutdown.

5.1.3.2 Sequential startup

It is possible to delay outlet power-on to reduce inrush currents on startup or to sequence the startup of several devices.

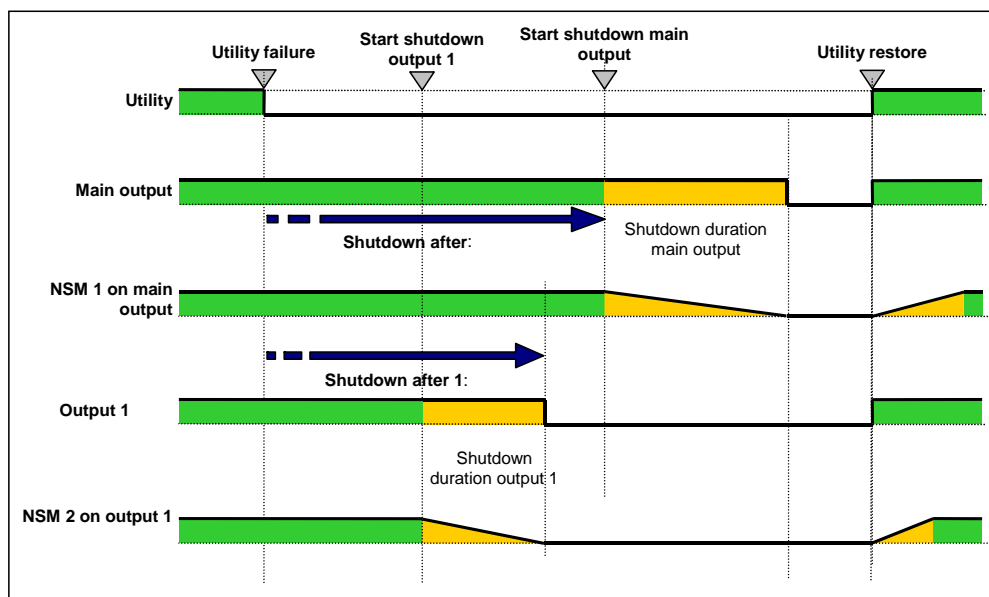
Controlled outlet startup after a given time is based on startup of the main outlet.

5.2 The different server and UPS shutdown sequences

5.2.1 Extended power outage, shutdown initiated by the Shutdown Timer (Shutdown after)

During battery backup time, the Shutdown Timer of the Network Management Card is reached: After a user-defined backup time period ([Shutdown parameters](#) page), the shutdown of all servers is initiated, followed by the UPS shutdown (depending on its configuration). The UPS restarts when utility power is restored (depending on its configuration)

Shutdown duration: Maximum value of shutdown times of protection application subscribed to the card. This value is updated each time a client subscribes/ unsubscribes.

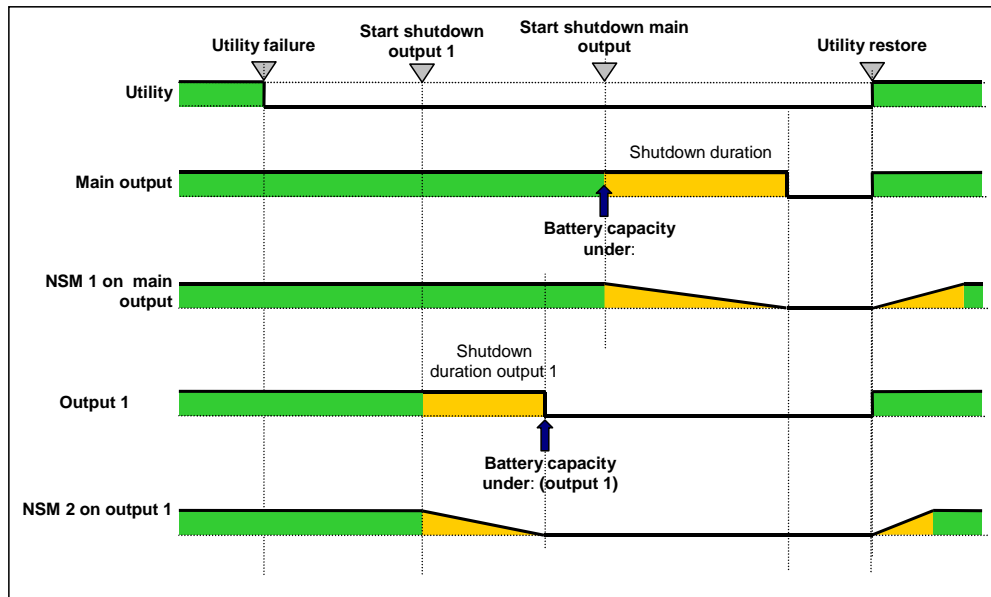


5.2.2 Extended power outage, shutdown initiated by the "Low battery power" message

When the "Low battery power" criterion is displayed, the UPS is shut off after taking into account the shutdown duration of the servers.

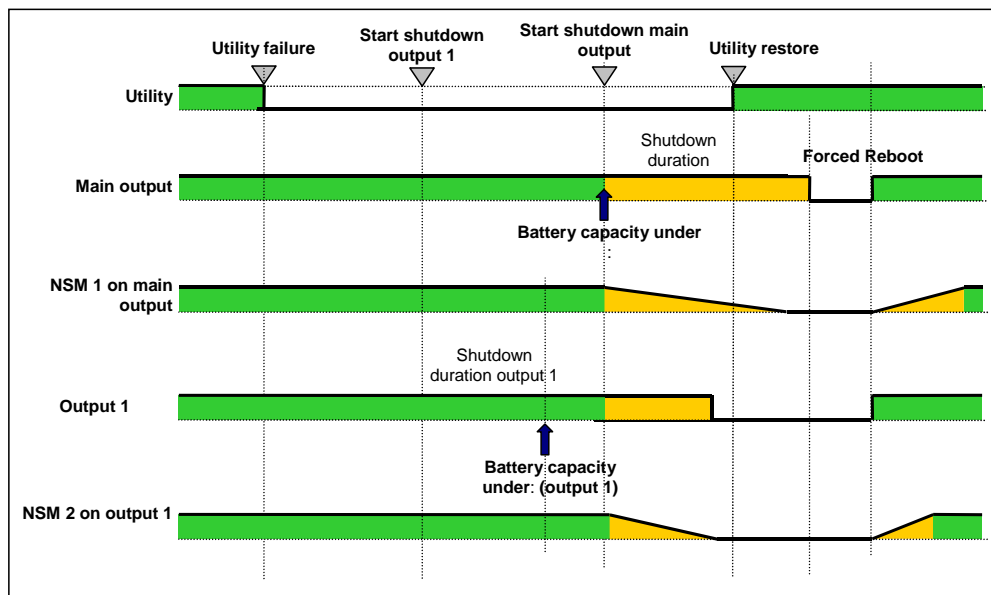
"Low battery power": The message appears if either of the two following criteria is reached:

- Low Battery Level
- Low Battery Delay



5.2.3 Case of power restoration before the end of the "shutdown duration" counter

If power is restored before the end of the Shutdown Duration, the UPS is shut off after the Shutdown Duration for a time equal to the forced reboot delay (10 seconds)



5.3 Shutdown management with 2 NMC boards

Certain UPS can have 2 NMC boards in order to:

- Increase the number of protected servers,
- Protect 2 groups of server connected to different networks physically separated.

5.3.1 Shutdown Duration

As described in the 5.1.1.4 paragraph, The protection application transmit their own "Shutdown duration" to the Network Management Card. Based on these values (maximum Shutdown duration of all subscribed customer systems) that the card will send to the delayed shutdown order to the UPS.

If the UPS have two NMC cards, the maximum shutdown duration of the two groups of protected systems will be used for the delayed shutdown order.

Example: If the subscribed customers of the first NMC card have a maximum Shutdown duration of 60s and the ones of the second NMC card of 120s, the servers shutdown will be launched 120s before the UPS shutoff..

5.3.2 Settings

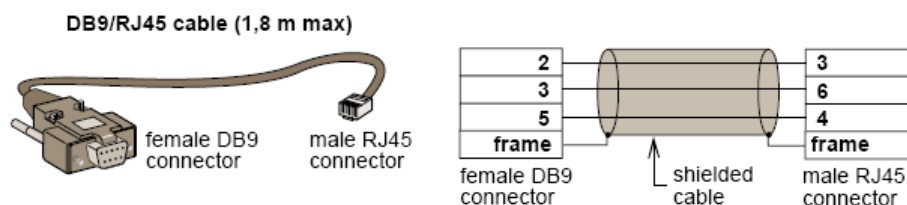
Set-up shutdown parameters to the same value on the 2 cards is highly recommended (for the main output and the controlled outlets).

If the settings are not the same, the first criteria reached on one the 2 cards will launch the secure shutdown of all servers

Please, note that in any case the shutdown of the protected servers will be executed safely.

6 Configuration via RS232

Use the cord supplied with the card.



Connect the card to a computer equipped with a hyperterminal type emulator. The serial link must be set at 9600 baud, 8 bits, no parity, 1 stop bit, and without flow control.

Check that UPS power is on.

Enter the admin password (not modifiable).

The menu is in English only.

EATON

NETWORK MANAGEMENT CARD

- 1 : Reset
 - 2 : Network configuration
 - 3 : Set Login Password to Default
 - 4 : Return to Default Configuration
 - 0 : Exit
-

6.1 Choice 1: Restart / Reset

Use this function to restart the card; two choices are possible

1 : Hardware Reset: Equivalent to a restart of the electrical power supply.

2 : Restart application: Restarts only the application part.

Reset

- 1 : Hardware Reset
 - 2 : Restart application
 - 0 : Exit
-

6.2 Choice 2: Network Configuration

Use this function to access network settings.

Network settings

- 1 : Read Network settings
 - 2 : Modify Network settings
 - 3 : Set Ethernet speed
 - 0 : Exit
-

6.2.1 Choice 1: Read IPv4&IPv6 Network settings

Enables reading of the card's routine settings

Network configuration :

MAC address : 00:20:85:FD:1C:07
Mode : Static IP
IP address : 166.99.18.129
Subnet mask : 255.255.248.0
Gateway : 166.99.17.1
Link Local IPv6 address : FE80::220:85FF:FEFD:4210 /64
Global IPv6 address : 2001:720:410:100A:220:85FF:FEFD:4210 /64
Global IPv6 address : 1789:720:410:100A:220:85FF:FEFD:4210 /64

6.2.2 Choice 2: Modify IPv4 Network settings

Enables the modification of network parameters

For each of the following questions, you can press <Return> to select the value shown in braces, or you can enter a new value.
Should this target obtain IP settings from the network?[N]
Static IP address [166.99.18.129]?
Subnet Mask [255.255.248.0]?
Gateway IP address [166.99.17.1]?
Wait during your new configuration is saved ...
Reset the card to take into account the new configuration.

In DHCP mode, the card can receive the following parameters according to the DHCP server settings

- IPv4 address
- Subnet Mask
- IPv4 Gateway address
- Primary DNS server
- Secondary DNS server

The card must be [restarted](#) in order for the new parameters to be taken into account.

6.2.3 Choice 3: Set Ethernet speed

Enables the modification of the network speed

Set the Ethernet speed : [1 : Automatic, 2 : 10 MBit]
1
New Ethernet speed : Automatic
Wait during the new setting is saved ...
Reset the card to take into account the new configuration.

The card must be [restarted](#) in order for the new parameters to be taken into account.

6.3 Choice 3: Lost password / Set Login Password to Default

In the even the login or password is lost, choice 3 enables the return to the default password:

EATON
NETWORK MANAGEMENT CARD

1 : Reset
2 : Network configuration
3 : Set Login Password to Default
4 : Return to Default Configuration
0 : Exit

Wait during Login Password return to default ...

Wait for the confirmation message.

Login Password have been successfully set.

The card is now accessible via the Web with the password admin.

The card must be [restarted](#) in order for the new parameters to be taken into account.

6.4 Choice 4: Return to Default Configuration

Enables restoration of the [default configuration](#) of all the card's parameters

EATON
NETWORK MANAGEMENT CARD

1 : Reset
2 : Network configuration
3 : Set Login Password to Default
4 : Return to Default Configuration
0 : Exit

Wait during configuration returns to default ...

Wait for the confirmation message.

Configuration has been set to default one.
You must Reset the card.

The card must be [restarted](#) in order for the new parameters to be taken into account.

7 Appendix

7.1 Tables of alarms and events

7.1.1 Table of alarms

List of time dated alarms

Alarm on

Battery fuse blown
No Battery
Battery temperature fault
Battery charger fault
Battery fault
MAX charger voltage fault
MIN charger voltage fault
Charger temperature fault
Rectifier fault
Chopper fault
Normal AC frequency out of tolerance
Normal AC fuses blown
Normal AC module fault
Normal AC voltage out of tolerance
Normal AC NOK
Site wiring fault
Bypass AC frequency out of tolerance
Bypass AC phase out of tolerance
Bypass AC voltage out of tolerance
Automatic Bypass fault
Automatic Bypass overload
Automatic Bypass overtemperature
Automatic Bypass thermal overload
Automatic Bypass switch (Q4S) open
Normal AC switch (Q1) open
Battery switch (QF1) open
Manual Bypass switch (Q3BP) closed
UPS on manual bypass
Output switch (Q5N) open
Single wave load fault
Negative DC bus too high
Positive DC bus too high

Alarm off

Battery fuse OK
Battery present
Battery temperature OK
Battery charger OK
Battery OK
Charger voltage OK
Charger voltage OK
Charger temperature OK
Rectifier OK
Chopper OK
Normal AC frequency OK
Normal AC fuses OK
Normal AC module OK
Normal AC voltage OK
Normal AC OK
Site wiring OK
Bypass AC frequency OK
Bypass AC phase OK
Bypass AC voltage OK
Automatic Bypass OK
Automatic Bypass load OK
Automatic Bypass temperature OK
Automatic Bypass load OK
Automatic Bypass switch (Q4S) closed
Normal AC switch (Q1) closed
Battery switch (QF1) closed
Manual Bypass switch (Q3BP) open

Output switch (Q5N) closed
Load OK
Negative DC bus OK
Positive DC bus OK

Negative DC bus too low	Negative DC bus OK
Positive DC bus too low	Positive DC bus OK
Inverter limitation	Inverter end of limitation
Inverter fuses blown	Input fuses OK
Inverter fault	Inverter OK
Inverter overload	Inverter load OK
Inverter over temperature	Inverter temperature OK
Inverter short circuit	Inverter OK
Inverter thermal overload	Inverter load OK
Load not protected - On Automatic Bypass	Load protected - Return from Bypass
Load short circuit	Load OK
Load not powered	Load powered
Protection Lost	Protection OK
Emergency button ON	Emergency button OFF
Fan fault	Fan OK
Redundancy Lost	Redundancy OK
Low battery	Battery OK
UPS communication failed	UPS communication restored
UPS data base not available	UPS data base OK
UPS on battery	UPS on normal AC
UPS internal fault	UPS OK
UPS overload	UPS returns to normal load
UPS overtemperature	UPS temperature OK
Imminent UPS shutoff	UPS OK
<Sensor name>: Temperature is above high threshold xx °C	<Sensor name>: Temperature is in normal range
<Sensor name>: Humidity is above high threshold xx %	<Sensor name>: Humidity is in normal range
<Sensor name>: Temperature is below low threshold xx °C	<Sensor name>: Temperature is in normal range
<Sensor name>: Humidity is below low threshold xx %	<Sensor name>: Humidity is in normal range
<Sensor name>: <Input #1 label> <when closed label>	<Sensor name>: <Input #1 label> <when closed label>
<Sensor name>: <Input #1 label> <when open label>	<Sensor name>: <Input #1 label> <when open label>
<Sensor name>: <Input #2 label> <when closed label>	<Sensor name>: <Input #2 label> <when closed label>
<Sensor name>: <Input #2 label> <when open label>	<Sensor name>: <Input #2 label> <when open label>

If the UPS is modular UPS, for each module:

Battery fuse blown

No Battery
Battery temperature fault
Battery charger fault
Low battery
Charger temperature fault
MAX charger voltage fault
MIN charger voltage fault
Chopper fault
Normal AC fuses blown
Normal AC module fault
Inverter fuses blown
Inverter fault
Inverter short circuit
Load short circuit
Rectifier fuse blown
Rectifier fault
DC bus unbalanced
Emergency button ON
Load not powered
UPS internal fault
Battery fault
Imminent UPS shutoff
Normal AC frequency out of tolerance
Normal AC voltage out of tolerance
Normal AC switch (Q1) open
Site wiring fault
Automatic Bypass switch (Q4S) open
Bypass AC frequency out of tolerance
Automatic Bypass fault
Automatic Bypass overload
Automatic Bypass overtemperature
Automatic Bypass thermal overload
Bypass AC phase out of tolerance
Bypass AC voltage out of tolerance
Load not protected - On Automatic Bypass
Battery switch (QF1) open
Manual Bypass switch (Q3BP) closed
UPS on manual bypass

Battery fuse OK

Battery present
Battery temperature OK
Battery charger OK
Battery OK
Charger temperature OK
Charger voltage OK
Charger voltage OK
Chopper OK
Normal AC fuses OK
Normal AC module OK
Input fuses OK
Inverter OK
Inverter OK
Load OK
Rectifier OK
Rectifier OK
Load OK
Emergency button OFF
Load powered
UPS OK
Battery OK
UPS OK
Normal AC frequency OK
Normal AC voltage OK
Normal AC switch (Q1) closed
Site wiring OK
Automatic Bypass switch (Q4S) closed
Bypass AC frequency OK
Automatic Bypass OK
Automatic Bypass load OK
Automatic Bypass temperature OK
Automatic Bypass load OK
Bypass AC phase OK
Bypass AC voltage OK
Load protected - Return from Bypass
Battery switch (QF1) closed
Manual Bypass switch (Q3BP) open

Inverter limitation
 Inverter overload
 Inverter overtemperature
 Inverter thermal overload
 Negative DC bus too high
 Positive DC bus too high
 Negative DC bus too low
 Positive DC bus too low
 Output switch (Q5N) open
 Normal AC NOK
 UPS on battery
 UPS overload
 UPS overtemperature
 Fan fault
 UPS communication failed

Inverter end of limitation
 Inverter load OK
 Inverter temperature OK
 Inverter load OK
 Negative DC bus OK
 Positive DC bus OK
 Negative DC bus OK
 Positive DC bus OK
 Output switch (Q5N) closed
 Normal AC OK
 UPS on normal AC
 UPS returns to normal load
 UPS temperature OK
 Fan OK
 UPS communication restored

7.1.2 Table of UPS events

List of time dated informations

Alarm on

Battery fuse blown
 Battery temperature fault
 No Battery
 Battery charger fault
 Charger temperature fault
 MAX charger voltage fault
 MIN charger voltage fault
 End of Warranty
 End of battery life
 End of life of the wearing parts
 Outlet 1 open
 Outlet 2 open
 Chopper fault
 Normal AC switch (Q1) open
 Normal AC frequency out of tolerance
 Normal AC fuses blown
 Normal AC module fault
 Normal AC voltage out of tolerance
 Site wiring fault
 Automatic Bypass switch (Q4S) open

Alarm off

Battery fuse OK
 Battery temperature OK
 Battery present
 Battery charger OK
 Charger temperature OK
 Charger voltage OK
 Charger voltage OK
 LCM message OK
 LCM message OK
 LCM message OK
 Outlet 1 closed
 Outlet 2 closed
 Chopper OK
 Normal AC switch (Q1) closed
 Normal AC frequency OK
 Normal AC fuses OK
 Normal AC module OK
 Normal AC voltage OK
 Site wiring OK
 Automatic Bypass switch (Q4S) closed

Bypass AC frequency out of tolerance	Bypass AC frequency OK
Automatic Bypass fault	Automatic Bypass OK
Automatic Bypass overload	Automatic Bypass load OK
Automatic Bypass overtemperature	Automatic Bypass temperature OK
Bypass AC phase out of tolerance	Bypass AC phase OK
Automatic Bypass thermal overload	Automatic Bypass load OK
Load not protected - On Automatic Bypass	Load protected - Return from Bypass
Bypass AC voltage out of tolerance	Bypass AC voltage OK
Battery switch (QF1) open	Battery switch (QF1) closed
Manual Bypass switch (Q3BP) closed	Manual Bypass switch (Q3BP) open
UPS on manual bypass	
Inverter limitation	Inverter end of limitation
Inverter fuses blown	Input fuses OK
Inverter fault	Inverter OK
Inverter overload	Inverter load OK
Inverter overtemperature	Inverter temperature OK
Inverter short circuit	Inverter OK
Inverter thermal overload	Inverter load OK
Output switch (Q5N) open	Output switch (Q5N) closed
Load short circuit	Load OK
Single wave load fault	Load OK
Negative DC bus too high	Negative DC bus OK
Positive DC bus too high	Positive DC bus OK
Rectifier fault	Rectifier OK
Negative DC bus too low	Negative DC bus OK
Positive DC bus too low	Positive DC bus OK
Protection Lost	Protection OK
Redundancy Lost	Redundancy OK
Normal AC NOK	Normal AC OK
Low battery	Battery OK
UPS communication failed	UPS communication restored
UPS data base not available	UPS data base OK
UPS on battery	UPS on normal AC
Emergency button ON	Emergency button OFF
Fan fault	Fan OK
Load not powered	Load powered
UPS internal fault	UPS OK
Battery fault	Battery OK
UPS overload	UPS returns to normal load
UPS overtemperature	UPS temperature OK
Imminent UPS shutoff	UPS OK

< Sensor Name> : Temperature is above high threshold <xx> (°C) or (°F)

<Sensor Name> : Temperature is in normal range

< Sensor Name> : Humidity is above high threshold <xx> (%)

<Sensor Name> : Temperature is in normal range

< Sensor Name> : Temperature is below low threshold <xx> °C or (°F)

<Sensor Name> : Temperature is in normal range

< Sensor Name> : Humidity is below high threshold <xx> (%)

<Sensor Name> : Temperature is in normal range

<Sensor name>: <Input #1 label> <when closed label>

<Sensor name>: <Input #1 label> <when open label>

<Sensor name>: <Input #2 label> <when closed label>

<Sensor name>: <Input #2 label> <when open label>>

7.1.3 Table of system alarms

Network Management Card startup
Send test mail SUCCESS
Send test mail ERROR
Send mail to <recipient> ERROR
<Sensor name> Communication failure
<Sensor name> Communication restored
Firmware upgraded
Connected NSM list Full, last connection refused
sendTrap()-> Unable to resolve hostname <hostname>
SNMP Send Trap # <num> failure to <hostname>
Time changed by user with yyyy/mm/dd hh:mm:ss
Time synchronized by NSM or EPM with yyyy/mm/dd hh:mm:ss

7.2 SNMP objects

7.2.1 IETF Mib

The Card implements the full IETF standard UPS MIB (RFC 1628), including the IETF alarm table and traps. Visit <http://tools.ietf.org> for a description of the MIB. The UPS MIB access path is 1.3.6.1.2.1.33

7.2.2 EATON Pulsar MIB (ex MGE)

This section contains an overview of MIB definitions for each of the MIB files:

- Eaton Pulsar MIB (MGE MIB)
- Eaton Pulsar MIB (MGE MIB) for environmental sensors

The NMC implements the reduced Eaton Pulsar MIB (MGE MIB), only the objects listed in the following tables are managed. The entire MIB description is available at <http://download.mgeops.com>

The Eaton Pulsar MIB access path is 1.3.6.1.4.1.705.1.

MIB object	SNMP Format	Add.path
upsmgIdentFamilyName	String	{1.1.0}
upsmgIdentModelName	String	{1.2.0}
upsmgIdentFirmwareVersion	String	{1.4.0}
upsmgIdentSerialNumber	String	{1.7.0}
upsmgConfigLowBatteryTime	seconds	{4.7.0}
upsmgConfigLowBatteryLevel	%	{4.8.0}
upsmgConfigAutoRestart	1(yes) 2(no)	{4.9.0}
upsmgConfigVARating	VA	{4.12.0}
upsmgBatteryRemainingTime	seconds	{5.1.0}
upsmgBatteryLevel	%	{5.2.0}
upsmgBatteryVoltage	deciVolts	{5.5.0}
upsmgBatteryCurrent	deciAmps	{5.6.0}
upsmgBatteryFaultBattery	1(yes) 2(no)	{5.9.0}
upsmgBatteryReplacement	1(yes) 2(no)	{5.11.0}
upsmgBatteryLowBattery	1(yes) 2(no)	{5.14.0}
upsmgBatteryChargerFault	1(yes) 2(no)	{5.15.0}
upsmgBatteryLowCondition	1(yes) 2(no)	{5.16.0}
upsmgInputPhaseNum		{6.1.0}
mginputVoltage_1	DeciVolts	{6.2.1.2.1.0}
mginputVoltage_2	DeciVolts	{6.2.1.2.2.0}
mginputVoltage_3	DeciVolts	{6.2.1.2.3.0}
mginputFrequency_1	DeciHz	{6.2.1.3.1.0}
mginputFrequency_2	DeciHz	{6.2.1.3.2.0}
mginputFrequency_3	DeciHz	{6.2.1.3.3.0}

mginputMinimumVoltage		{6.2.1.4.0}
mginputMaximumVoltage		{6.2.1.5.0}
mginputCurrent_1	DeciAmps	{6.2.1.6.1.0}
mginputCurrent_2	DeciAmps	{6.2.1.6.2.0}
mginputCurrent_3	DeciAmps	{6.2.1.6.3.0}
upsmgInputBadStatus		{6.3.0}
upsmgInputLineFailCause		{6.4.0}
upsmgOutputPhaseNum		{7.1.0}
mgoutputPhaseIndex_1		{7.2.1.1.1.0}
mgoutputPhaseIndex_2		{7.2.1.1.2.0}
mgoutputPhaseIndex_3		{7.2.1.1.3.0}
mgoutputVoltage_1	decivolts	{7.2.1.2.1.0}
mgoutputVoltage_2	decivolts	{7.2.1.2.2.0}
mgoutputVoltage_3	decivolts	{7.2.1.2.3.0}
mgoutputFrequency_1	decihz	{7.2.1.3.1.0}
mgoutputFrequency_2	decihz	{7.2.1.3.2.0}
mgoutputFrequency_3	decihz	{7.2.1.3.3.0}
mgoutputLoadPerPhase_1	%	{7.2.1.4.1.0}
mgoutputLoadPerPhase_2	%	{7.2.1.4.2.0}
mgoutputLoadPerPhase_3	%	{7.2.1.4.3.0}
mgoutputCurrent_1	deciamps	{7.2.1.5.1.0}
mgoutputCurrent_2	deciamps	{7.2.1.5.2.0}
mgoutputCurrent_3	deciamps	{7.2.1.5.3.0}
upsmgOutputOnBattery	1(yes) 2(no)	{7.3.0}
upsmgOutputOnByPass	1(yes) 2(no)	{7.4.0}
upsmgOutputUtilityOff	1(yes) 2(no)	{7.7.0}
upsmgOutputInverterOff	1(yes) 2(no)	{7.9.0}
upsmgOutputOverLoad	1(yes) 2(no)	{7.10.0}
upsmgOutputOverTemp	1(yes) 2(no)	{7.11.0}
upsmgAgentIpAddress		{12.1.0}
upsmgAgentSubnetMask		{12.2.0}
upsmgAgentDefGateway		{12.3.0}
upsmgAgentType		{12.6.0}
upsmgAgentMibVersion		{12.11.0}
upsmgAgentFirmwareVersion		{12.12.0}
upsmgAgentCommUPS	1(yes) 2(no)	{12.13.0}

This table lists objects that are managed if there is an optional Sensor / Environmental Monitoring Probe (EMP) installed. The Eaton Pulsar MIB access path is 1.3.6.1.4.1.705.1.

upsmgEnvironAmbientTemp	0.1 degré	{8.1.0}
upsmgEnvironAmbientHumidity	0.1 %	{8.2.0}
upsmgEnvironmentNum		{8.6.0}
upsmgEnvironmentIndex		{8.7.1.1.1}
upsmgEnvironmentComFailure	1(yes) 2(no)	{8.7.1.2.1}
upsmgEnvironmentTemperature	0.1 degré	{8.7.1.3.1}
upsmgEnvironmentTemperatureLow	1(yes) 2(no)	{8.7.1.4.1}
upsmgEnvironmentTemperatureHigh	1(yes) 2(no)	{8.7.1.5.1}
upsmgEnvironmentHumidity	0.1 %	{8.7.1.6.1}
upsmgEnvironmentHumidityLow	1(yes) 2(no)	{8.7.1.7.1}
upsmgEnvironmentHumidityHigh	1(yes) 2(no)	{8.7.1.8.1}
upsmgEnvironmentInput1State	closed(1), open(2)	{8.7.1.9.1}
upsmgEnvironmentInput2State	closed(1), open(2)	{8.7.1.10.1}

7.2.3 TRAPS table: (1.3.6.1.4.1.705.1.11)

SNMP traps are sent when alarms appears and disappears.

Level 1:informational, 2:major, 3:critical

MIB TRAP	Trap #	Level
upsmgBatteryFault	Trap 1	Level 3
upsmgBatteryOK	Trap 2	Level 1
upsmgAtLowBattery	Trap 5	Level 3
upsmgFromLowBattery	Trap 6	Level 1
upsmgChargerFault	Trap 7	Level 3
upsmgChargerOK	Trap 8	Level 1
upsmgOnBattery	Trap 11	Level 2
upsmgReturnFromBattery	Trap 12	Level 1
upsmgOnByPass	Trap 13	Level 2
upsmgReturnFromByPass	Trap 14	Level 1
upsmgUtilityFailure	Trap 17	Level 2
upsmgUtilityRestored	Trap 18	Level 1
upsmgOverLoad	Trap 21	Level 3
upsmgLoadOK	Trap 22	Level 1
upsmgOverTemperature	Trap 23	Level 3
upsmgTemperatureOK	Trap 24	Level 1
upsmgOffToStart	Trap 29	Level 2
upsmgOffInProgress	Trap 31	Level 3
upsmgCommunicationFailure	Trap 37	Level 3
upsmgCommunicationRestored	Trap 38	Level 1
upsmgRedundancyLost	Trap 65	Level 2
upsmgRedundancyOK	Trap 66	Level 2
upsmgProtectionLost	Trap 67	Level 2
upsmgProtectionOK	Trap 68	Level 2

If the Environment Sensor is detected, the following information is managed:

upsEnvironmentComFailure	Trap 53	Level 2
upsEnvironmentComOK	Trap 54	Level 2
upsEnvironmentTemperatureLow	Trap 55	Level 2
upsEnvironmentTemperatureHigh	Trap 56	Level 2
upsEnvironmentTemperatureOK	Trap 57	Level 2
upsEnvironmentHumidityLow	Trap 58	Level 2
upsEnvironmentHumidityHigh	Trap 59	Level 2
upsEnvironmentHumidityOK	Trap 60	Level 2

upsEnvironmentInput1Closed	Trap 61	Level 2
upsEnvironmentInput1Open	Trap 62	Level 2
upsEnvironmentInput2Open	Trap 64	Level 2
upsEnvironmentInput2Closed	Trap 63	Level 2

The level is used to select traps to be sent to the supervisor. This adjustment is available from the “Notified applications” page

7.2.4 EATON Powerware MIB

The Card implements the full Eaton Powerware MIB (PowerMIB), including alarm tables. The Eaton traps are sent. The Eaton Powerware MIB access path is 1.3.6.1.4.1.534.

Table is an abbreviated list of objects from the PowerMIB. The UPS output/load segment controls objects and the entire MIB description is available at <http://powerquality.eaton.com/Support/SoftwareDrivers>.

MIB Object	SNMP Format	Add.path
xupsIdentManufacturer	String	{1.1.0}
xupsIdentModel	String	{1.2.0}
xupsIdentSoftwareVersion	String	{1.3.0}
xupsIdentOemCode	Integer	{1.4.0}
xupsBatTimeRemaining	Seconds	{2.1.0}
xupsBatVoltage	Volts DC	{2.2.0}
xupsBatCurrent	Amps DC	{2.3.0}
xupsBatCapacity	Percent	{2.4.0}
xupsBatteryAbmStatus	Integer	{2.5.0}
xupsBatteryLastReplacedDate	String	{2.6.0}
xupsInputFrequency	0.1 Hertz	{3.1.0}
xupsInputLineBads	Integer	{3.2.0}
xupsInputNumPhases	Integer	{3.3.0}
xupsInputTable		{3.4.0}
xupsInputPhase	Integer	{3.4.1.1.x}
xupsInputVoltage	RMS Volts	{3.4.1.2.x}
xupsInputCurrent	RMS Amps	{3.4.1.3.x}
xupsInputWatts	Watts	{3.4.1.4.x}
xupsInputSource	Integer	{3.5.0}
xupsDualInputStatus	Integer	{3.6.0}
xupsSecondaryInputWatch	Integer	{3.7.0}
xupsOutputLoad	Percent	{4.1.0}

xupsOutputFrequency	0.1 Hertz	{4.2.0}
xupsOutputNumPhases	Integer	{4.3.0}
xupsOutputTable		{4.4.0}
xupsOutputPhase	Integer	{4.4.1.1.x}
xupsOutputVoltage	RMS Volts	{4.4.1.2.x}
xupsOutputCurrent	RMS Amps	{4.4.1.3.x}
xupsOutputWatts	Watts	{4.4.1.4.x}
xupsOutputSource	Integer	{4.5.0}
xupsBypassFrequency	0.1 Hertz	{5.1.0}
xupsBypassNumPhases	Integer	{5.2.0}
xupsBypassTable		{5.3.0}
xupsBypassPhase	Integer	{5.3.1.1.x}
xupsBypassVoltage	RMS Volts	{5.3.1.2.x}
xupsEnvAmbientTemp	Degrees C	{6.1.0}
xupsEnvAmbientLowerLimit	Degrees C	{6.2.0}
xupsEnvAmbientUpperLimit	Degrees C	{6.3.0}
xupsEnvAmbientHumidity	Percent	{6.4.0}
xupsEnvRemoteTemp	Degrees C	{6.5.0}
xupsEnvRemoteHumidity	Percent	{6.6.0}
xupsEnvNumContacts	Integer	{6.7.0}
xupsContactSenseTable	table	{6.8.0}
xupsContactIndex	Integer	{6.8.1.1.x}
xupsContactType	Integer	{6.8.1.2.x}
xupsContactState	Integer	{6.8.1.3.x}
xupsContactDescr	String	{6.8.1.4.x}
xupsEnvRemoteTempLowerLimit	Degrees C	{6.9.0}
xupsEnvRemoteTempUpperLimit	Degrees C	{6.10.0}
xupsEnvRemoteHumidityLowerLimit	Percent	{6.11.0}
xupsEnvRemoteHumidityUpperLimit	Percent	{6.12.0}
xupsAlarmTable	table	{7.2.0}
xupsAlarmID		{7.2.1.1.x}
xupsAlarmDescr		{7.2.1.2.x}
xupsAlarmTime		{7.2.1.3.x}
xupsOnBattery		{7.3.0}
xupsLowBattery		{7.4.0}
xupsUtilityPowerRestored		{7.5.0}

xupsReturnFromLowBattery		{7.6.0}
upsOutputOverload		{7.7.0}
xupsInternalFailure		{7.8.0}
xupsBatteryDischarged		{7.9.0}
xupsInverterFailure		{7.10.0}
xupsOnBypass		{7.11.0}
xupsBypassNotAvailable		{7.12.0}
xupsOutputOff		{7.13.0}
xupsInputFailure		{7.14.0}
xupsBuildingAlarm		{7.15.0}
xupsShutdownImminent		{7.16.0}
xupsOnInverter		{7.17.0}
xupsBreakerOpen		{7.20.0}
xupsAlarmBatteryBad		{7.23.0}
xupsOutputOffAsRequested		{7.24.0}
xupsDiagnosticTestFailed		{7.25.0}
xupsCommunicationsLost		{7.26.0}
xupsUpsShutdownPending		{7.27.0}
xupsAlarmTestInProgress		{7.28.0}
xupsAmbientTempBad		{7.29.0}
xupsLossOfRedundancy		{7.30.0}
xupsAlarmTempBad		{7.31.0}
xupsAlarmChargerFailed		{7.32.0}
xupsAlarmFanFailure		{7.33.0}
xupsAlarmFuseFailure		{7.34.0}
xupsPowerSwitchBad		{7.35.0}
xupsModuleFailure		{7.36.0}
xupsOnAlternatePowerSource		{7.37.0}
xupsAltPowerNotAvailable		{7.38.0}
xupsNoticeCondition		{7.39.0}
xupsRemoteTempBad		{7.40.0}
xupsRemoteHumidityBad		{7.41.0}
xupsAlarmOutputBad		{7.42.0}
xupsAlarmAwaitingPower		{7.43.0}
xupsOnMaintenanceBypass		{7.44.0}
xupsTestBatteryStatus	Integer	{8.2.0}
xupsLastGeneralTest	Integer	{8.3.0}
xupsLastGeneralTestResult	Integer	{8.4.0}

xupsConfigOutputVoltage	RMS Volts	{10.1.0}
xupsConfigInputVoltage	RMS Volts	{10.2.0}
xupsConfigOutputWatts	Watts	{10.3.0}
xupsConfigOutputFreq	0.1 Hertz	{10.4.0}
xupsConfigDateAndTime	String	{10.5.0}
xupsConfigLowOutputVoltageLimit RMS Volts		{10.6.0}
xupsConfigHighOutputVoltageLimit RMS Volts		{10.7.0}
xupsConfigInstallDate	String	{10.8.0}
xupsTopologyType	Integer	{13.1.0}
xupsTopoMachineCode	Integer	{13.2.0}
xupsTopoUnitNumber	Integer	{13.3.0}
xupsTopoPowerStrategy	Integer	{13.4.0}

8 Glossary

Bootp:

Protocol based on UDP used to allocate an IP address corresponding to an Ethernet card during the startup phase. Defined by the RCF 951

Community name:

Access key to access SNMP agent information

DHCP Dynamic Host Configuration Protocol

This IETF protocol enables remote, automatic, self-configuration of the IP addresses of a workstation.

DNS Domain Name Service

The DNS protocol ensure correspondence between the name of a machine and its IP address

Gateway

Interconnection equipment between networks with different conventions, to enable communication between them

HTML

(HyperText Markup Language) Language used to describe hypertext pages on the web.

HTTPS:

Secure version of HTTP, the communication protocol of the World Wide Web. It was invented by Netscape Communications Corporation to provide authentication and encrypted communication and is used in electronic commerce.

MIB MANAGEMENT INFORMATION BASE

- Group of software commands to control and administrate a device through the network. Each type of device (server, hub, PC, UPS, etc.) has its own MIB

NETWORK MANAGEMENT CARD

Communication cards to supervise UPS and communicate with Network Shutdown Module to insure power protection on servers

NETWORK MANAGEMENT PROXY

Communication software installed on a PC connected to the UPS to supervise it and communicate with Network Shutdown Module to insure power protection on servers

NMS NETWORK MANAGEMENT STATION (SNMP)

The dedicated PC or workstation is used on the company's networks to administrate all devices connected to the

network. Data are transmitted using the SNMP protocol. Popular NMS systems include HP OpenView, IBM Tivoli, CA Unicenter, etc.

NSM: NETWORK SHUTDOWN MODULE

Protection software installed on a PC or server to protect it

NTP Network Time Protocol

Network protocol that synchronizes the time on several machines.

Programmable outlet (controlled outlet):

Outlet that can be remote-switched on or off. UM-Client components enable management of such outlets.

REBOOT: To restart a system after an interruption.

- To perform an obstacle-free “reboot”, it is essential that the system is correctly and carefully shut down beforehand.
- The reboot is usually automatic if the computer is re-supplied with electricity (from the utility or from the UPS).

RFC

Request for Comments. All documents defining internal Internet operation.

SNMP (SIMPLE NETWORK MANAGEMENT PROTOCOL)

Protocol used to remote-supervise, administrate and control devices connected to a company network.

SMTP (SIMPLE MAIL TRANSFER PROTOCOL)

Enables message transfer between e-mail servers or between the client and its server. It is based on the server's port 25. It is described in RFC 821

SSL (Secure Sockets Layers) is a protocol developed by Netscape Communications Corporation for securing data transmission in commercial transactions on the Internet. Using public-key cryptography, SSL provides server authentication, data encryption, and data integrity for client/server communications

Subnet mask:

Mask of bits used to identify and differentiate the network address and the equipment address in an IP address. Normally, the mask is automatically determined by the class of address, which defines in a unique manner the network part/equipment part division of the IP address.

- Class A: internet address: 255.0.0.0.
- Class B: internet address: 255.255.0.0.
- Class C: internet address: 255.255.255.0.

Trap (SNMP): This term describes an event that affects a MIB variable. Traps are sent to the manager, which is programmed to perform specific tasks upon reception of the traps.